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NEW CROP CULTIVARS

No. 13, 1970-76

U.S. DEPARTMENT OF AGRICULTURE / EXTENSION SERVICE / ESC—584

NEW CROP CULTIVARS

No. 13

1970 - 76

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INTRODUCTION

This publication includes new field crop cultivars which were described from 1970 through June 1976. Cultivars of corn, sorghum, turfgrass, and potatoes are not included. Cultivar descriptions were obtained from published literature, state Extension agronomists, Agricultural Research Service, Soil Conservation Service, Plant Variety Protection Office, and private industry. Mention of trade names, commercial products, or services does not constitute a guarantee or warranty of the product. These references are made with the understanding that no discrimination is intended and no endorsement by the U.S. Department of Agriculture is implied over other products not mentioned.

The term "cultivar," meaning a cultivated variety, is synonymous with "variety." "Cultivar" is preferred to avoid confusion with botanical classification schemes in which "variety" also refers to a large grouping of plants within a species.

Statements relative to the availability of seed are based on the 1975 Report of Acres Planted for Certification by Seed Certification Agencies. Crop improvement agencies of the states named in each cultivar description will have information about current seed supplies. In most cases, the originating agency maintains Breeder stock.

This manuscript was prepared by Dr. Norman Goetze, Extension Agronomist, Oregon State University, under provision of an agreement between Oregon State University, Cooperative Extension Service, and Extension Service, U.S. Department of Agriculture.

Agency abbreviations used in the text are:

USDA--United States Department of Agriculture

AES--Agricultural Experiment Station

ARS--Agricultural Research Service, USDA

SCS--Soil Conservation Service, USDA

CIMMYT--International Maize and Wheat Improvement Center

CDA--Canada Department of Agriculture

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ALFALFA

521 is a winter-hardy alfalfa cultivar developed by Pioneer Hi-Bred International, Inc., Johnston, Iowa. Its 18 parental clones were derived from experimental lines, 520, and Atra.

521 is predominantly purple with variegated flowers, including some white and yellow. Its major growth is uniform, but fall growth is irregular. Its winter hardiness is similar to Vernal and 520. Most plants have semierect growth habit.

521 has resistance to bacterial wilt similar to Ranger. Its spotted alfalfa aphid resistance is slightly better than Dawson.

It is adapted to those areas where 520 and Vernal are grown.

530 is a winter-hardy, Flemish, synthetic alfalfa cultivar developed cooperatively by Arnold-Thomas Seed Service, Fresno, California, and Pioneer Hi-Bred International, Inc. It is a 33-clone synthetic derived from Flemish-type plants, Vernal, and Saranac.

530 has dark to light purple flowers with a few variegated ones. 530 makes rapid recovery after clipping and has more fall growth than Vernal.

530 has resistance to bacterial wilt, spotted alfalfa aphid, and pea aphid. Its resistance to Leptosphaerulina leafspot, common leafspot, and downy mildew is better than Vernal.

(Crop Science 14:127)

A-57 is a seven-clone synthetic cultivar developed for the Embro Seed Company of St. Louis, Missouri, by the Farm Seed Research Corporation. It has Vernal and Ranger parentage.

Parental clones were selected for persistance, recovery after cutting, resistance to leafhopper yellowing, rapid spring recovery, and leafiness. The variety is intended for use as hay in the central Corn Belt.

A-57 grows upright and has less fall dormancy than Vernal or Ranger. Its bacterial wilt resistance is similar to Ranger and its leafhopper yellowing resistance is similar to Vernal.

Parental clones are being maintained by Farm Seed Research Corporation.

(Crop Science 15-96)

AGATE is a Phytophthora root rot-resistant alfalfa cultivar developed cooperatively by Minnesota AES and ARS. It is a synthetic cultivar derived by intercrossing Phytophthora root rot-resistant plants selected from Vernal and Ramsey.

Agate has fall dormancy similar to Vernal and is winter-hardy.

In addition to Phytophthora root rot, Agate also has resistance to common leafspot and bacterial wilt. It is especially well adapted to poorly drained soils in areas where Phytophthora root rot is a problem. In the absence of Phytophthora root rot, its yields have been no more than Vernal.

Breeder seed was produced at Prosser, Washington, and is being maintained by Minnesota AES. Certified seed is produced in Idaho, Montana, Oregon, and South Dakota.

(Crop Science 13:768-769)

ANCHOR is a winter-hardy, Flemish-type, bacterial wilt-resistant alfalfa cultivar developed by Rudy-Patrick Company, Ames, Iowa. It has Apex, Alfa, Saranac, and DuPuits parentage.

Anchor has purple flowers ranging from light to dark, with a few variegated. Its winter hardiness ranks between Saranac and Vernal. It makes rapid regrowth after each cutting. Anchor is adapted to the Corn Belt, the Northeast, and eastern Canada.

Anchor has resistance to bacterial wilt, downy mildew, and pea aphid. It is also tolerant of potato leafhopper.

Breeder seed was produced at Caldwell, Idaho. Certified seed is produced in Arizona and California.

(Crop Science 13:286)

APOLLO is a Phytophthora root rot-resistant, winter-hardy alfalfa cultivar developed by North American Plant Breeders, Little Rock, Arkansas. Its parentage is 75 percent hardy types and 25 percent Flemish and central types.

Apollo flowers vary from dark purple to light blue with less than 1 percent cream. It has upright growth. Its lodging resistance ranks between Titan and Saranac. Its fall growth is halfway between Vernal and Saranac. The roots have more branching than Agate and Vernal. The winter hardiness of Apollo is equal to or better than Titan and Anchor. It is adapted to the North Central States and southern Canada, as well as to areas having less severe winters.

Apollo has good Phytophthora root rot and bacterial wilt resistance. Its resistance to anthracnose and downy mildew is low. It has moderate resistance to leafhopper yellowing.

Breeder seed is maintained by North American Plant Breeders.

ARC is an anthracnose- and pea aphid-resistant alfalfa cultivar developed cooperatively by ARS and the Agriculture Experiment Stations of Maryland, North Carolina, Pennsylvania, and Virginia. It has Narragansett, Atlantic, Rhizoma, DuPuits, and Team parentage.

Arc is highly resistant to anthracnose and pea aphid. It is moderately resistant to bacterial wilt, and has some tolerance of alfalfa weevil larval feeding. Arc has exhibited superior stand persistence and resistance to late season weed encroachment. Arc is intended for the Middle Atlantic, Southern Appalachian, and other areas where anthracnose is serious.

Breeder seed was produced at Proser, Washington, and will be maintained by ARS at Beltsville, Maryland. Foundation seed will be produced in the Pacific Northwest. Certified seed is produced in California, Idaho, and Oregon.

(Crop Science 15:97)

AS-49 is a synthetic alfalfa cultivar developed by Farm Seed Research Corporation for Ferry-Morse Seed Company. Its parentage is 12 seed lines from Cody, Zia, and Lahontan.

Parental plants were selected for seed production, spotted alfalfa aphid resistance, and seedling vigor. The fall dormancy is similar to Lahontan. AS-49 is intended for hay and green chop in northern California, New Mexico, western Kansas, Colorado, and Texas.

The bacterial wilt resistance is greater than Ranger, but less than Vernal. It has more Phytophthora root rot resistance than Moapa, but less than Lahontan.

Breeder seed is maintained by Farm Seed Research Corporation. Other classes of seed are produced in California.

(Crop Science 15:96)

BONUS is a winter-hardy alfalfa cultivar developed by Cal/West Seeds, Woodland, California. Its eight clones were selected from Vernal.

Bonus has nonvariegated, purple flowers and upright growth. It continues growth with shortening day length, hence makes good late summer and early fall growth. Its winter hardiness is equivalent to Ranger. Its best use is for hay or haylage in the Corn Belt States south of a line from St. Paul to Madison.

Bonus is resistant to bacterial wilt. Its leaf spot and leafhopper tolerance is similar to Vernal. It is susceptible to spotted alfalfa aphid, pea aphid, and alfalfa weevil.

Breeder seed is maintained by Cal/West Seeds. Foundation seed is produced in northern California.

G-777 is a Flemish alfalfa cultivar developed by Northrup, King & Company, Minneapolis, Minnesota. Its parentage is Cardinal selections.

G-777 has predominantly purple flowers with some blue. The foliage is dark green with erect growth habit. It is adapted for hay production where Cardinal and other Flemish alfalfas are adapted. G-777 is tall and rapid growing. It matures early. Its yields have been equal to or greater than other Flemish cultivars.

G-777 is moderately resistant to bacterial wilt and leaf spot.

Breeder seed is maintained by Northrup, King. Foundation seed is produced in Washington, Idaho, Utah, and northern Nevada.

HAYDEN is a nonwinter-hardy alfalfa cultivar developed cooperatively by Arizona AES and ARS. It has Mesa-Sirsa and Sonora 70 parentage.

Hayden has upright growth. It has purple flowers and dark green foliage. Hayden has outyielded the average of Mesa-Sirsa, El-Unico, and Sonora by 19 percent. It is adapted to the lower desert valleys of the Southwest.

Hayden has the Mesa-Sirsa and El-Unico resistance to four biotypes of spotted alfalfa aphid.

Breeder seed is maintained in Arizona and California. Certified seed is also produced in Arizona and California.

HONEOYE is a winter-hardy alfalfa cultivar developed by Cornell University AES. It has Saranac parentage.

Honeoye closely resembles Saranac in growth habit and persistence. Its yields are slightly higher than Saranac. A high percentage of the flowers is variegated. More of its plants than those of Saranac make early spring growth. Honeoye is adapted to the Northeastern States and the northern Midwest.

Honeoye is susceptible to anthracnose.

Foundation seed is maintained by New York Seed Improvement Cooperative.

KANE is a creeping-rooted, winter-hardy alfalfa cultivar developed by CDA. It is a synthetic cultivar of six clones selected for creeping ability, wilt resistance, and forage yield.

Kane has excellent winter hardiness and has shown good yield from both irrigated and dry land hay and pasture production throughout western Canada. Its yields have been equal to or higher than Roamer, Rambler, Beaver, and Ladak.

Kane has bacterial wilt resistance.

Breeder seed is maintained by CDA at Lethbridge, Alberta. Certified seed is available in Canada.

(Crop Science 13:130)

LEW is a stem nematode-resistant, nonwinter-hardy alfalfa cultivar developed by Arizona AES. It is a 100-clone synthetic derived from collections made from African and Indian sources.

Lew is a tall-growing cultivar that is adapted to low elevation areas of the Southwest. Its yields are comparable to Hayden and Sonora-70 when grown in nematode-free areas.

Lew is highly resistant to stem nematodes. It has more resistance to the Ent-H biotype of spotted alfalfa aphid than Hayden. It is nearly immune to a new filamentous virus found in Arizona.

Breeder seed is maintained by Arizona AES. Limited supplies of Certified seed available in 1977.

NUGGET is a winter-hardy alfalfa cultivar developed by North American Plant Breeders, Brookston, Indiana. It is a four-clone synthetic selected from Vernal, Alfa, and Tuna.

Nugget is nearly as winter-hardy as Vernal. It has outyielded Vernal and Saranac in Iowa and Illinois. Its growth recovery rate is good. The flower colors are predominantly blue and purple, with some green. It is adapted for hay and green chop in the central and northern Corn Belt.

Nugget has good bacterial wilt resistance and moderate pea aphid resistance.

Breeder seed is maintained by North American Plant Breeders.

PACER is a winter-dormant, Phytophthora root rot-resistant alfalfa developed by Land O'Lakes, Inc. It is an eight-clone synthetic derived from Vernal, Scout, Dawson, Weevlchek, Saranac, and a Flemish selection.

Pacer has purple flowers with 10 to 20 percent variegated types. Pacer is winter-dormant and makes good late summer and fall regrowth. Its forage yields have high potential. Pacer is well adapted to the northern alfalfa regions with good moisture supplies and to parts of the Pacific Northwest.

Pacer is more pea aphid-resistant than Kanza. Its Phytophthora root rot resistance is better than Vernal. Its resistance to bacterial wilt is similar to Vernal.

Breeder seed is maintained by Land O'Lakes, Inc.

RAMSEY is a multiple pest-resistant, winter-hardy alfalfa cultivar developed cooperatively by Minnesota AES and ARS. It is a four-clone synthetic, two of which are from Ladak.

Ramsey is similar to Vernal in adaptation, and has less lodging.

It has high levels of resistance to common leafspot, black stem, downy mildew, Leptosphaerulina leafspot, Phytophthora root rot, and potato leafhopper. Its bacterial wilt resistance is similar to Vernal. In the absence of winter killing and diseases, its yield is equivalent to Vernal, Iroquois, and Saranac. Its yields are superior during stress periods and in long-term stands.

Breeder seed was produced at Lamberton, Minnesota, and is being maintained by Minnesota AES. Certified seed is produced in Oregon.

(Crop Science 13:769)

SARANAC AR is an anthracnose-resistant, winter-hardy alfalfa cultivar developed by Cornell University AES. It has Saranac parentage.

Saranac AR is similar to Saranac. Fewer of its flowers are variegated. It is adapted to the Northeastern States, northern Midwest, and eastern Canada.

Saranac AR is resistant to anthracnose and bacterial wilt.

Foundation seed is maintained by New York Seed Improvement Cooperative.

SONORA-70 is a high-yielding, nonwinter-hardy alfalfa cultivar developed cooperatively by Arizona AES and ARS. It is a nine-clone synthetic selected from Sonora.

Sonora-70 is morphologically similar to Sonora. It has out-yielded Sonora by 24 percent and averages of other check cultivars by 13 percent. It is expected to replace Sonora in the lower desert valleys of southern Arizona.

Sonora-70 is intermediate between Mesa-Sirsa and Sonora in resistance to four biotypes of spotted alfalfa aphid. Its parental clones were selected for freedom from alfalfa mosaic virus.

Breeder and Foundation seed are maintained by Arizona AES. Certified seed is produced in California.

SPREDOR is a rhizomatous, winter-hardy alfalfa cultivar developed by Northrup, King & Co., Minneapolis, Minnesota. Its seven parental clones were selected from Rambler, Vernal, Travois, and PI 183262.

Spredor has highly variegated flower color. Its growth habit is prostrate to semiprostrate with low, wide crowns. Many of the plants have rhizomes or creeping roots. Spredor is adapted for overseeding rangeland and for pasture in central and northern United States and in southern Canada. Spredor has early fall dormancy. It has excellent winter hardiness and does not regrow as fast as Vernal.

Spredor is bacterial wilt resistant.

Breeder seed is maintained by Northrup, King. Foundation seed i produced in the Pacific Northwest.

SX-10 is a synthetic alfalfa cultivar developed by Farm Seed Research Corporation for Sexauer Company, Brookings, South Dakota. Its parentage is 14 clones from Ranger, Vernal, and Rambler.

Many SX-10 plants have well-developed, laterally branched roots that are resistant to heaving. It has fall dormancy like Vernal. SX-10 is intended for both hay and pasture in areas where Ranger and Vernal are adapted.

It is better than Vernal in resistance to common leafspot, downy mildew, and leafhopper yellowing.

Parental clones for Breeder seed production are being maintained by Farm Seed Research Corporation.

(Crop Science 15:96)

THOR is a bacterial wilt-resistant, Flemish alfalfa cultivar developed by Northrup, King & Co., Minneapolis, Minnesota. Its 30 parental clones were selected from Saranac, Cardinal, and crosses between Cardinal and Glacier.

Thor has dark purple to blue flowers. Its winter dormancy ranks between DuPuits and Ranger. It has an erect growth habit with dark green foliage similar to Saranac and DuPuits. It is adapted for hay production in Flemish cultivar-producing areas.

Thor is bacterial wilt-resistant and will provide greater stand longevity in the Flemish variety areas.

Breeder seed is maintained by Northrup, King. Foundation seed is produced in Washington, Idaho, and Nevada.

TREK is a stem nematode-resistant alfalfa cultivar developed by CDA. It is an eight-clone synthetic derived from Beaver and stem nematode-resistant lines, mostly from Lahontan.

Trek has predominantly purple flowers with some green or bluish shades. Trek yields have been similar to Beaver at Lethbridge but 5 percent lower at Swift Current and Saskatoon. Its yield is particularly good in third cutting. The winter hardiness is equal to Vernal, but less than Beaver. Its recovery after harvest is faster than Beaver or Vernal, but slower than Flemish cultivars. Trek is well adapted to irrigated regions of southern Alberta.

Seventy percent of Trek's plants have stem nematode resistance in comparison to Lahontan's 82 percent. Trek has 81 percent bacterial wilt-resistant plants compared with Vernal's 75 percent.

Breeder seed is maintained by CDA at Lethbridge, Alberta. Certified seed will be available in 1977.

(Canadian Journal of Plant Science 55:847-849)

(Crop Science 16:444)

VALOR is a winter-hardy, bacterial wilt-resistant alfalfa cultivar developed by Land O'Lakes, Inc. It is a nine-clone synthetic derived from Vernal, Scout, Dawson, and Narragansett.

Valor has winter dormancy and good late season regrowth. It has upright growth and fine stems. The flowers are mostly bluish to purple, with some variegation. Valor is adapted to the northern alfalfa region.

Valor has good resistance to bacterial wilt and pea aphids. It has some resistance to anthracnose and is tolerant to leafhoppers.

Breeder seed is maintained by Land O'Lakes, Inc.

VISTA is a late fall-growing, winter-dormant alfalfa cultivar developed by Cal/West Seeds, Woodland, California. It is a synthetic cultivar consisting of 19 clones selected from Flemish germplasm pools.

Vista has nonvariegated blue flower color. Its uniform fall regrowth is later than Vernal or Dawson. Its fall dormancy is similar to Saranac. It is adapted for hay production in southern portions of Minnesota, Wisconsin, and Michigan; the remainder of the Corn Belt; and east to Pennsylvania. It has rapid regrowth after harvest. Yields are equal to Saranac.

Vista has bacterial wilt resistance equal to Ranger. Its foliar disease resistance is similar to Saranac.

Breeder seed is maintained by Cal/West Seeds.

WEEVLCHEK is a bacterial wilt-resistant alfalfa cultivar developed by Farmers Forage Research Cooperative, Lafayette, Indiana. It is a six-clone synthetic derived from breeding lines.

Weevlchek is winter-hardy with dormancy similar to Ranger and Vernal. It has prolonged spring dormancy, but its summer vigor is equal to Vernal. The flower color spans the complete range. Weevlchek has a wide range of adaptation in the fall-dormant alfalfa areas.

Weevlchek is resistant to leafhopper and bacterial wilt.

Breeder seed is maintained by Farmers Forage Research Cooperative. Certified seed is produced in Oregon and Utah.

WL 219 is a fast-recovering, winter-hardy alfalfa cultivar developed by Waterman-Loomis Company, Adelphi, Maryland.

WL 219 has 78 percent purple, 17 percent variegated, and 5 percent cream and yellow flowers. It has upright growth and makes rapid recovery after cutting. In tests from western Nebraska to New Jersey and north to Ontario, WL 219 has yielded more than Vernal and WL 215. Its variation in yield by location has been low.

WL 219 is resistant to bacterial wilt and tolerant to Phytophthora root rot, Rhizoctonia, and pea aphid.

Breeder seed is maintained by Waterman-Loomis. Certified seed will be available after 1976 seed harvest.

WL 307 is an alfalfa weevil-tolerant alfalfa cultivar developed by Waterman-Loomis Company. It has WL 215, Ranger, Vernal, and Atlantic parentage.

WL 307 is less fall-dormant than WL 215. It has an upright growth with axillary branching. The flowers are predominantly purple with some blues and variegated.

WL 307 has resistance to bacterial wilt, anthracnose, pea aphid, and spotted alfalfa aphid. It also has some tolerance to alfalfa weevil.

Breeder seed is maintained by Waterman-Loomis Company.

(Crop Science 13:129)

WL 308 is a fall-dormant alfalfa cultivar developed by Waterman-Loomis Company. It has WL 303 and seven experimental synthetics in its parentage. It is a 335-plant synthetic cultivar.

Most agronomic traits of WL 308 are similar to WL 303. WL 308 has more yellow and cream-colored flowers.

WL 308 has the same pea aphid and spotted aphid resistance as WL 303. It has more bacterial wilt resistance than WL 303.

Breeder seed is maintained by Waterman-Loomis Company.

(Crop Science 13:129)

WL 309 is a pea aphid- and spotted alfalfa aphid-resistant cultivar of alfalfa developed by Waterman-Loomis Company. Its parentage is the same populations from which WL 306 was developed. Additional screening for resistance to the pea aphid and spotted alfalfa aphid was done.

WL 309 has better winter survival than WL 306. WL 309 flowers are 40 percent purple, 20 percent blue, and 40 percent variegated with a trace of yellow and white. Its area of adaptation is similar to Buffalo and north of that area. WL 309 has yielded slightly more than WL 306.

WL 309 has better resistance to pea aphid and spotted alfalfa aphid than WL 306. Its bacterial wilt resistance is slightly less than Vernal.

Breeder seed is maintained by Waterman-Loomis Company.

(Crop Science 14:337)

WL 450 is a stem nematode-resistant, nondormant alfalfa cultivar developed by Waterman-Loomis Company. It is a 31-clone synthetic derived from PI 141462, WL 504, and Flemish cultivars.

The winter dormancy of WL 450 ranks between Moapa and Lahontan. Its growth habit is upright and its flowers are predominantly purple.

In addition to stem nematode resistance, WL 450 has resistance to the spotted alfalfa aphid and the pea aphid. Its resistance to downy mildew, anthracnose, and Leptosphaeria leaf spot is better than Moapa. WL 450 outyields Caliverde 65 and Lahontan in southwest areas in the presence of stem nematodes.

Breeder seed was produced in Kern County, California, and is maintained by Waterman-Loomis Company.

(Crop Science 14:905)

WL 451 is a nondormant alfalfa cultivar developed by Waterman-Loomis Company. It is a mass selection from Lahontan, WL 504, N529 germplasm, and five long-lived clones from Piper City, Illinois.

WL 451 makes upright growth. It has mostly purple flowers with 2 percent white or variegated.

WL 451 was selected on the basis of its anthracnose and Phytophthora root rot resistance in the Bakersfield, California area. It also has spotted alfalfa aphid, pea aphid, bacterial wilt, and downy mildew resistance. The primary area of adaptation is in wet-soil areas of California and Arizona where Moapa and Lahontan do not persist.

Breeder seed was produced in Kern County, California, and is maintained by Waterman-Loomis Company.

(Crop Science 14:905)

WL 501-R is a nondormant alfalfa cultivar developed by Waterman-Loomis Company. It was mass selected from a multitude of genetic sources. Selection at Bakersfield, California, was based on spotted alfalfa aphid resistance, root rot resistance, and longevity.

WL 501-R makes upright growth and has purple flowers.

WL 501-R is moderately resistant to the San Joaquin Valley biotypes of spotted alfalfa aphid and pea aphid. Its bacterial wilt resistance is similar to Ranger. Its downy mildew and anthracnose resistance is superior to Moapa. It is adapted to southwestern alfalfa areas where Moapa is grown.

Breeder seed was produced in Kern County, California, and is maintained by Waterman-Loomis Company.

(Crop Science 14:905)

WL 504 is a nondormant, spotted alfalfa aphid-resistant alfalfa cultivar developed by Waterman-Loomis Company. It is a synthetic cultivar derived from 92 selections made from 16 cultivars or lines.

WL 504 has upright growth with purple flowers. Its winter dormancy is similar to Moapa. It is adapted to areas of the Southwest where Moapa and Sonora are grown.

Resistance to the alfalfa aphid and tolerance of downy mildew and pea aphid are its major attributes.

Breeder seed is maintained by Waterman-Loomis Company.

(Crop Science 11:600)

WL 508 is a nondormant, spotted alfalfa aphid- and pea aphid-resistant alfalfa cultivar developed by Waterman-Loomis Company. It is a synthetic cultivar derived from 95 selections made from 16 cultivars or lines.

WL 508 has upright growth with frequent axillary branching. It is purple flowered. Its yield and winter growth are equivalent to WL 504. It is adapted to areas of the Southwest where Moapa, Sonora, and WL 504 are grown.

Superior resistance to the pea aphid is the major improvement of WL 508 over WL 504. WL 508 also has the spotted alfalfa aphid resistance of WL 504 and is tolerant of downy mildew.

Breeder seed is maintained by Waterman-Loomis Company.

(*Crop Science* 11:600)

WL 600 is a nondormant cultivar of alfalfa developed by Waterman-Loomis Company. It has WL 504, WL 508, and WL 209 parentage.

WL 600 has a moderately uniform, upright growth pattern. The stems have frequent axillary branching. The flowers are purple.

WL 600 is resistant to the Kern County, California, biotypes of pea aphid and spotted alfalfa aphid. It is also resistant to downy mildew and anthracnose. In the presence of these pests it is higher yielding and longer lived than Moapa. Its area of adaptation is the southwestern alfalfa growing areas.

Breeder seed was produced in Kern County, California, and is maintained by Waterman-Loomis Company.

(*Crop Science* 14:905-906)

BARLEY

ADAIR (CI 17294) is a six-row, winter, feed barley developed by Oregon AES. It has Cascade and Wocus parentage.

Adair is midtall, but has stiff straw. The spike is short and dense with smooth awns. Adair has outyielded Casbon and other cultivars in western Oregon. It has only fair winter hardiness and is adapted to western Oregon.

Breeder seed is maintained by Oregon AES.

BARTEL (CI 15240) is a six-row, spring, feed barley cultivar for irrigated regions of the Southwest. It was developed by Arizona AES and ARS. It has Atlas, CI 1227, California Mariout, Harlan, Trebi, Mars, and Arivat parentage.

When compared with Arivat in irrigated regions of the Southwest, higher yields result from higher-tillering capacity and good lodging resistance, especially when planted early and at lower rates. Bartel has good shattering resistance, nodding heads, rough awns, and high test weight.

Breeder seed is maintained by Arizona AES. Foundation seed is available from the Arizona Crop Improvement Association. Registered seed is available in Arizona.

BEACON (CI 15480) is an early maturing, six-row, spring, malting barley developed by North Dakota AES. It has Conquest and Dickson parentage.

Beacon has a seminodding spike with rough awns and colorless aleurone. The straw is tall and strong. Beacon matures earlier than Larker, Dickson, or Nordic. Its yields have been greater than Larker but less than Dickson and Nordic.

Beacon is resistant to loose smut and prevalent field populations of spot blotch, net blotch, Septoria leaf blotch, and stem rust. It is susceptible to leaf rust and powdery mildew.

Breeder seed is maintained by North Dakota AES. Other classes of seed are available in Minnesota, Nebraska, North Dakota, and South Dakota.

(Crop Science 13:494)

BLAZER (CI 15230) is a six-row, spring, malting barley developed by Washington AES. It has Traill and a thermal neutron progeny of the Orange Lemma and Gem cross in its parentage.

Blazer has an erect spike and rough awns. It is slightly shorter than Traill or Larker. Blazer yields more than Traill or Larker on both dry land and irrigated conditions. It is also more lodging and shatter resistant. It does not yield as much as Steptoe. Blazer kernels are smooth, white, and plump. Blazer heads slightly later than Traill or Larker. Blazer is recommended as a replacement for Traill in the higher rainfall areas of eastern Washington.

The test weight is equivalent to Traill or Larker.

Stock seed is produced in California and Washington.

BOONE (CI 15494) is a six-row, winter barley, well adapted to the Piedmont region. It was developed by North Carolina AES. It has Wade, Davie, and Piedmont parentage.

Boone has short, rough awns; early maturity; good straw strength; and easy threshability. The winter growth is semiprostrate. Boone has consistently outyielded Clayton, and also has higher test weight.

Boone has resistance to leaf rust and is susceptible to powdery mildew.

Breeder seed is being maintained by North Carolina AES. Foundation seed is also available in North Carolina.

(Crop Science 16:123)

BOYER (CI 15559) is a six-row, winter, feed barley developed by Washington AES. It has Luther and a breeding line in its parentage.

Boyer has erect spikes with rough awns. It is shorter than Luther and Kamiak. Its winter hardiness is equal to Hudson and Kamiak, and is better than Luther. Boyer has better lodging resistance than other barley cultivars grown in the area. It yields more than Luther, Kamiak, and Hudson. Boyer heads earlier than Luther, but does not mature as early as Hudson or Kamiak.

Boyer is probably susceptible to yellow dwarf virus.

Boyer has smooth, white, plum kernels, which are larger than Luther. The test weight is similar to Luther and lower than Kamiak or Hudson.

Foundation seed is available in Washington.

CARIBOU (CI 14005) is a two-row, spring, feed barley developed cooperatively by Idaho AES and ARS. It has Piroline and Munsing parentage.

Caribou matures early and is lodging-resistant under dryland conditions. It has lax spikes with smooth awns. Its kernels are white. Caribou has outyielded Piroline, Munsing, Betzes, Otis, and Unitan in dryland tests in Southern Idaho.

Breeder and Foundation seed are maintained at the Tetonia Branch Experiment Station. Certified seed is available in Idaho.

(Crop Science 11:938)

CREE (CI 15256) is a six-row, spring, feed barley developed by Minnesota AES. It has Dickson and an experimental line parentage.

Cree has rough awns and white aleurone. The spike is midlong and seminodding. Cree matures midearly. It is midtall and has moderately strong straw. Grain yields have exceeded Larker by 6 to 11 percent.

Cree is highly resistant to stem rust and loose smut. It has moderate resistance to spot blotch.

Breeder seed is maintained by Minnesota AES. Other classes of seed are available in Minnesota and North Dakota.

(Crop Science 13:712)

DEAWN (CI 15515) is a six-row, spring, feed barley cultivar developed cooperatively by Utah AES and ARS. It has Bonneville, Nepal, and Bonneville Dwarf parentage.

Deawn has a compact head and deciduous awns. It is similar to Woodvale in height, lodging resistance, and test weight. Its maturity is similar to Steveland. Because of the deciduous awns, it has excellent threshability. It has good resistance to loose smut.

Deawn is best adapted to fertile, irrigated conditions and is not competitive in areas where moisture is limited.

Breeder seed is maintained by Utah AES.

ERBET (CI 13826) is an early-maturing, two-row, spring, malting barley developed cooperatively by Montana AES, ARS, and the Malting Barley Improvement Association. It has Prior and Betzes parentage.

Erbet matures 8 days earlier than Betzes. In comparison with Betzes, it is shorter, has fewer tillers, has fewer kernels per spike, and has large kernels. The spikes are lax, midlong, and have rough awns. The short kernels have a white aleurone. The yield is similar to Betzes, except in lower yield locations, where Erbet is superior to Betzes. Erbet is best adapted to short growing seasons and limited-moisture conditions or for late planting. It lodges less than Betzes.

Its disease reactions are similar to Betzes.

The malting quality is similar to Betzes, and the kernels are more plump when grown in dry locations.

Breeder seed is maintained by Montana AES. Other classes of seed are also available in Montana.

(Crop Science 12:72)

GEORGIE is a two-row, spring, feed barley cultivar developed by North American Plant Breeders, Berthoud, Colorado. It has Vada and Zephyr parentage.

Georgie has stiff straw and is 4 inches shorter than Betzes and Shabet. Georgie has rough awns and white aleurone. It has good shatter resistance. It is late maturing and has outyielded Betzes in Montana. It is adapted to high-rainfall or irrigated areas.

Georgie is resistant to powdery mildew and covered smut. It is susceptible to loose smut and stem rust, and is moderately susceptible to scald.

Georgie has a high percentage of plump kernels.

HARLAN II (CI 15215) is a six-row, spring, feed barley selected for its forage production. It was developed by Arizona AES. It was selected from Harlan.

Harlan II has a high tillering capacity and produces more forage than Harlan. When planted in October, it can be grazed through January and still produce satisfactory grain yields. Harlan II stands well when seeded at low rates. It has upright spikes, rough awns, and light blue aleurone color.

Breeder seed is maintained by Arizona AES.

(Crop Science 11:601)

KAMIAK (CI 15197) is an early maturing, six-row, winter, feed barley developed by Washington State University. It has Bore and Hudson parentage.

Kamiak yields 10 percent more than Hudson and has winter hardiness equal to Hudson. It has rough awns and is shorter than Hudson. It is expected to replace Hudson in dryland areas of the West.

Breeder seed is maintained by Washington State University. Registered and Certified seed are available in Idaho, Utah, and Washington.

(*Crop Science* 13:579)

KANBY (CI 15493) is a six-row, winter feed barley developed cooperatively by Kansas AES and ARS. It is a single head selection from a composite cross resulting from the intercrossing of 18 winter cultivars.

Kanby has rough awns and a semilax spike. It has higher test weight and stronger straw than Will. It is midtall and has midseason maturity. Its winter hardiness is comparable to Will, but poorer than Reno. Kanby has outyielded both Will and Reno in Kansas tests. It is recommended for southeastern and south central Kansas.

Under natural infection, Kanby has little loose smut and is susceptible to both scald and mildew.

Foundation seed is maintained by Kansas AES. Registered or Certified seed is available in Colorado, Kansas, Missouri, and Nebraska.

(*Crop Science* 15:97-98)

KLAGES (CI 15478) is a high-malt-extract, high-yielding, two-row, spring, malting barley developed cooperatively by ARS and Idaho AES. It has Betzes and Domen parentage.

Klages has lax, long spikes with rough awns. It has good straw strength, high test weight, and heavy kernels when grown under irrigation. Klages outyields Piroline by 8 to 10 percent under irrigation in Idaho. It is not recommended for dryland production in low rainfall areas.

Klages has higher malt extract and higher alpha amylase activity than Piroline.

Breeder seed is maintained by Tetonia Branch Experiment Station. Registered and Certified seed are available in the Pacific Northwest, and northern Rocky Mountain barley-producing states.

(Crop Science 14:337-338)

LUD is a two-row, spring, feed barley cultivar developed by North American Plant Breeders, Berthoud, Colorado. It has Vada, Zephyr, and a breeding line in its parentage.

Lud has rough awns and white aleurone. It is stiff strawed and shorter than Betzes or Shabet. Lud is late maturing and shatter resistant. Lud is high yielding in irrigated or high rainfall regions.

Lud is resistant to powdery mildew, false loose smut, and covered smut. It is tolerant to loose smut and susceptible to scald and stem rust.

Lud has a higher percentage of plump kernels than Georgie.

MANKER (CI 15549) is a six-row, rough-awned, spring, malting barley having many kernels per spike. It was developed by Minnesota AES. It has Cree, Parkland, Vantage, Kindred, and Jotun parentage.

Manker is midtall with moderately strong straw. It is medium early in maturity. The spike is semierect with larger numbers of kernels per spike. There are fewer tillers and lower tiller mortality. The kernels are white. Manker has outyielded Larker and appears to be best adapted to the Red River Valley area.

Manker has more soluble protein than other malting cultivars.

Breeder seed is maintained by Minnesota AES. Other classes of seed are available in Minnesota, North Dakota, and South Dakota.

(Crop Science 15:603)

NEBAR (CI 15486) is a six-row, winter, feed barley developed by Nebraska AES. It has Roger, Kearney, Sabbaton, and Meimi parentage.

Nebar matures 1 to 3 days later than Kearney. Its winter hardiness is nearly equal to Kearney, but it recovers from winter damage better than Kearney. Nebar is taller than Kearney and has moderately good straw strength. The awns are long and rough. The aleurone color is white to pale blue. Nebar has outyielded Kearney by 58 percent and Paoli by 8 percent.

Nebar is resistant to greenbug. It escapes stem rust by early maturity. Nebar has moderate resistance to leaf rust, scald, and Septoria leaf blotch.

The test weight is excellent.

Breeder seed is maintained by Nebraska AES. Registered and Certified seed are also available in Nebraska.

(Crop Science 16:444)

NORDIC (CI 15216) is a six-row, spring, feed barley developed by North Dakota AES. It has Dickson, Traill, and CI 4738 parentage.

Nordic has rough awns on a seminodding spike. It has midseason maturity. The plants are midtall with only moderate straw strength. The white kernels are medium sized. Yields have been slightly more than Larker.

Nordic is resistant to prevalent strains of spot blotch, net blotch, Septoria leaf blotch, and stem rust. It is susceptible to loose smut, leaf rust, and powdery mildew.

Breeder seed is maintained by North Dakota AES. Other classes of seed are available in Minnesota, Nebraska, and North Dakota.

(Crop Science 13:495)

PAOLI is a six-row, winter, feed barley cultivar with short, stiff straw. It was developed by Purdue University AES and ARS. Its parentage includes Kearney, Kenbar, Kentucky No. 1, Comfort, Purdue 1101, Wisconsin Pedigree 38, Chevron, Bolivia, and Jefferson.

In Indiana and adjacent areas, it has superior yields; better winter hardiness; and short, stiff straw. Paoli has earlier maturity than Harrison or Jefferson and would be suited for double crop rotations.

It is susceptible to both leaf rust and powdery mildew.

Breeder seed is maintained by Purdue AES. Certified seed is available in Indiana and Kansas.

PENASCO is a six-row, winter, feed barley developed by New Mexico AES. It is a reselection and purification of New Mexico Winter.

Penasco has a lax, inclined spike with rough awns. It has excellent winter hardiness. It is shorter than Will and Keowee. Lodging can be a problem in high-yielding environments. Penasco is a dual purpose cultivar especially well adapted to Pecos Valley for winter grazing and grain production. It produces an excellent early season forage yield and the highest subsequent grain yields.

Its test weight is satisfactory.

Breeder seed is maintained by New Mexico AES.

PRILAR (CI 15241) is a heat-tolerant, six-row, spring, feed barley cultivar developed cooperatively by South Dakota AES and ARS. It has Primus and Larker parentage.

Prilar has smooth awns and midtall, stiff straw. It has medium maturity. The kernels are midsized and plump, with white aleurone. Prilar has good heat and drought tolerance and has yielded well in South Dakota and adjacent areas.

Prilar is resistant to stem rust, but is susceptible to common foliar diseases.

Breeder seed is maintained by South Dakota State University.

(Crop Science 14:604)

PURCELL (CI 16181) is a stiff-strawed, two-row, spring feed barley developed cooperatively by Montana AES and ARS. It has Freja and Vantage parentage.

Purcell is midtall, but has good lodging resistance. It has nodding spikes with rough awns. It has glume awns equal to the length of the glume. The kernels are white. Purcell heads earlier than Freja and has better lodging resistance. At Bonners Ferry, Idaho, Purcell has outyielded Freja by 19 percent, and Firlbecks III by 4 percent. It seems best adapted to northern Idaho areas where Freja has been grown.

Breeder seed is maintained by Sandpoint Research and Extension Center, Sandpoint, Idaho. Foundation seed is available in Montana.

(Crop Science 15:603)

SHABET (CI 13827) is a shatter-resistant, two-row, spring, malting barley developed cooperatively by Montana AES, ARS, and the Malting Barley Improvement Association. It has Glacier, Compana, and Betzes parentage.

Shabet has lax, long spikes with rough awns. The kernels have white aleurones and are relatively long. Its yield is similar to Betzes except in conditions of shattering, when the yields are superior to Betzes. Threshability has not been affected by increased shattering resistance.

The disease reactions of Shabet are similar to Betzes.

The malting quality of Shabet is similar to Betzes.

Breeder seed is maintained by Montana AES. Other classes of seed are also available in Montana.

(Crop Science 12:713)

STEPTOE (CI 15229) is a high-yielding, six-row, spring, feed barley developed by Washington State University. It has a Washington selection and Unitan parentage.

Steptoe has short, stiff straw, and erect spikes with rough awns. Its white, plump kernels have good test weight. Its yields have been consistently high in western test areas. It is adapted to both irrigated and dryland areas.

Breeder seed is maintained by Washington State University. Other classes of seed are available in Northwestern and Rocky Mountain barley-producing states.

(Crop Science 13:770)

SUMMIT is a two-row, spring, malting barley developed by North American Plant Breeders, Berthoud, Colorado. It has Zephyr, Tern, and a breeding line in its parentage.

Summit is shorter than Betzes and Shabet and has good lodging resistance. It matures later than Betzes and has good shatter resistance. Summit has outyielded Betzes in Montana, Firlbeck's III in Colorado, and Steptoe in Oregon. Summit is adapted to both irrigated and dryland conditions in Montana. The awns are strongly pigmented at emergence.

Summit is resistant to powdery mildew, false loose smut, and covered smut. It has field tolerance to stem rust, spot blotch, and net blotch. Summit is susceptible to loose smut and scald, and is moderately susceptible to leaf rust.

Summit has a high percentage of plump kernels. Its malting quality is similar to Betzes and Piroline.

SUTTER (CI 15475) is a late-maturing, six-row, spring, feed barley developed by the University of California. It has CI 1237 and Tennessee parentage.

Sutter has tall, strong straw and long, erect spikes. It has rough awns with white aleurone. Its late maturity limits its use to areas with soils of high water-holding capacity and to areas with late spring frosts. It is also tolerant of cold and wet soils. It has averaged 28 percent higher yields than other cultivars when grown in these limiting conditions. Sutter has no advantages in normal barley areas.

Sutter is highly tolerant of yellow dwarf virus and moderately tolerant of scald, powdery mildew, and net blotch.

Breeder seed is maintained by University of California. Other classes of seed are available in California.

(Crop Science 13:285)

UC 566 (CI 15477) is a yellow dwarf virus-tolerant, six-row, spring, feed barley developed by University of California. It has CM 67 and Numar parentage.

UC 566 has short, moderately stiff straw with erect spikes. It has smooth awns and large kernels with blue aleurone. It has early maturity. UC 566 has outyielded Briggs, CM67, and Numar largely because of yellow dwarf virus tolerance and better straw strength.

Yellow dwarf virus does infect UC 566 and causes some discoloration, but little dwarfing.

Breeder seed is maintained by University of California, Davis. Other classes of seed are available in California.

(Crop Science 13:770-771)

UC SIGNAL (CI 15536) is a six-row, spring, feed barley developed by the University of California. Its parentage is from a single plant selection from a bulk population synthesized from composite crosses II, V, XII, XIV, and XV.

UC Signal has a semismooth awn, short straw, and erect spikes. It has large, medium blue-colored kernels. It matures early and the straw is weak. It has outyielded other cultivars in the Imperial Valley, but has not yielded as much as UC 566 and CM 67 in the San Joaquin Valley. UC Signal is recommended for the lower desert areas.

Breeder seed is maintained by Imperial Valley Field Station, El Centro. Registered seed is available in California.

(*Crop Science* 15:603)

VANGUARD (CI 11868) is a high-yielding, two-row, spring, malting barley developed by Washington State University. It has Betzes, Haisa II, and Piroline parentage.

Vanguard is agronomically similar to Piroline. It has rough awns and a blue aleurone. It yields 5 percent more than Piroline in the Palouse and has better lodging resistance.

Its malt has higher extract, soluble nitrogen, and alpha amylase.

Breeder seed is maintained by Washington State University. Registered and Certified seed are available in Washington.

(*Crop Science* 13:770)

VOLBAR (CI 15557) is a high-yielding, six-row, winter, feed barley developed by Tennessee AES. It has Wong, Atlas 46, and experimental lines in its parentage.

Volbar is midlate in maturity, equivalent to Harrison and Jefferson. It has good winter hardiness and is high yielding. It has rough awns.

Volbar has some tolerance to yellow dwarf virus.

Foundation or Registered seed is available in Georgia, South Carolina, and Tennessee.

WESTBAR (CI 15620) is a six-row, spring, feed barley developed by Arizona AES. It has Atlas, CI 1227, California Mariout, Harlan, Trebi, Mars, and Arivat parentage.

Westbar has upright spikes with rough awns. The aleurone is white. It is shorter than Arivat, but its straw strength and tolerance to lodging are similar. It threshes easier than other barley cultivars grown in Arizona. Its maturity is similar to Arivat. Westbar is adapted to the irrigated areas of the Southwest. It has consistently outyielded Arivat and California Mariout.

The test weight of Westbar is higher than Arivat and California Mariout.

Breeder seed is maintained by Arizona AES.

BEACHGRASS

CAPE is a cultivar of American beachgrass with more vigor and darker green color than other cultivars. It was developed by SCS from a single clone collection made at Cape Cod, Massachusetts.

Cape is more vigorous, produces more culms, and has darker green color than other cultivars. Very few seedheads are produced. It is probably adapted in the Atlantic Region from Maine to North Carolina and in the Great Lakes Region for sand dune stabilization.

Breeder stock is maintained by SCS at Cape May Plant Materials Center, Cape May, New Jersey.

(Crop Science 14:777)

BEANS

MECOSTA is a light red kidney bean cultivar developed by Michigan AES. It has Great Northern No. 1 and breeding lines in its parentage.

Mecosta has an appearance and agronomic characteristics similar to Manitou, California, and Idaho Light Red Kidney. It yields more than the above cultivars in the presence of halo blight. Mecosta is expected to replace Charlevoix.

Mecosta is tolerant to halo blight and resistant to common bean mosaic. It is susceptible to common bacterial blight.

Mecosta has excellent seed type and canning quality.

Stock seed is available in Idaho.

MONTCALM is a dark red kidney bean cultivar developed by Michigan AES. It has Great Northern No. 1 and breeding lines in its parentage.

Montcalm is tolerant to halo blight and is susceptible to common bacterial blight.

Montcalm has an excellent seed type and has good canning and salad quality. Montcalm is expected to replace Charlevoix.

Stock seed is available in Idaho and Michigan.

OURAY is an upright, bush cultivar of pinto bean developed cooperatively by ARS and Colorado State University. It has Sanilac, UL III, Dark Red Kidney, and a rust-resistant pinto selection in its parentage.

Ouray has a large, sturdy stem; prolific branching; and heavy sets of fruit. The upright bush growth is similar to Sanilac. It has midearly maturity.

Ouray is resistant to common and New York 15 strains of common bean mosaic. It is susceptible to curly top and is very sensitive to bacterial blight.

The seed size is medium to large with typical pinto pattern. Stock seed is available from Colorado State University.

PETITE is a cultivar of tickbean (*Vicia faba* L. *minor* Beck) with very small seeds. It was developed by Minnesota AES. It was selected from PI 222129, which came from Afghanistan.

Petite blooms late, but matures more rapidly than most cultivars of fababeans. Petite has the smallest seed and the highest yield of all tickbeans. Its yield was equal to horsebean yields.

Its average seed protein content has been 20 percent.

Breeder seed is maintained by the Department of Agronomy and Plant Genetics, University of Minnesota.

(*Crop Science* 16:124)

BLUESTEM

CAMPER is a cultivar of little bluestem developed cooperatively by Nebraska AES and ARS. It is a two-line synthetic. The lines were collected from prairies of Nebraska and Kansas.

Camper is a long-lived, perennial cultivar which makes maximum vegetative growth during midsummer. It has a bunch-type growth, but spreads by short rhizomes. The seed maturity is late, but earlier than Blaze. Camper is recommended as a component of mixtures for range, nonirrigated pasture, and roadside planting.

Breeder seed is maintained by Nebraska AES. Certified seed is available in Kansas and Nebraska.

GOLDSTRIKE is a cultivar of sand bluestem developed cooperatively by Nebraska AES and ARS. It is a two-line synthetic. The lines were collected in the Nebraska Sandhills.

Goldstrike is a long-lived, perennial cultivar whose vegetative growth rate allows maximum grazing in midsummer. The plants are variable in height and spread by rhizomes. The plant color changes from blue-green early in the season to yellow and gold at flowering time. Goldstrike is best adapted to sandy or loam soils for range, dryland pasture, and roadside plantings.

Breeder seed is maintained by Nebraska AES. Certified seed is available in Kansas and Nebraska.

PLAINS is a drought-tolerant, persistent, winter-hardy bluestem cultivar developed cooperatively by Oklahoma AES and ARS. Plains is a synthetic of 30 lines introduced from Afghanistan, India, Iran, Iraq, and Turkey.

Plains is erect and tufted from saucer-shaped clumps. It flowers continuously from early summer to frost and reproduces apomictically. Plains has better winter hardiness and yield than King Ranch. It is not as high yielding as Caucasian.

Its leaf rust resistance is better than King Ranch.

The *in vitro* dry matter digestibility of Plains forage is 16 percent higher than Caucasian forage.

Breeder seed is maintained by Oklahoma AES. Certified seed is available in Oklahoma.

(*Crop Science* 13:580)

BROMEGRASS

BROMAGE is a smooth bromegrass cultivar developed by Americana Seeds, Inc., Muscatine, Iowa. It was selected from Sac.

Bromage has better seedling vigor than Sac. Its foliage color is a distinctive blue-green. Its forage yield is equal to or better than Sac.

Bromage has tolerance to brown leaf spot and root rot similar to Sac.

POLAR is a winter-hardy cultivar of bromegrass developed cooperatively by Alaska AES and ARS. Polar is a 16-clone synthetic cultivar derived from interspecific hybrids of _Bromus inermis_ and _Bromus pumpellianus_. Five of the cloves are from Manchar, Mandan 404, _Bromus inermis_ 12, Colorado 144, and Canadian commercial.

Polar has less vigorous rhizomes than other cultivars and is less susceptible to lodging. It has superior winter hardiness and outyields other cultivars.

Breeder seed is maintained by Alaska Institute of Agricultural Sciences.

(_Crop Science_ 11:939)

BUFFALOGRASS

TEXOKA is a buffalograss cultivar with high seed production potential. It was released cooperatively by ARS, SCS, and the Agricultural Experiment Stations of Kansas, Oklahoma, and Texas. It is a 10-clone synthetic relating to populations from Kansas, Oklahoma, and Texas.

Texoka has high seed production potential resulting from a high percentage of female plants. Its forage yields have consistently been higher than other commercial seed sources. It is best adapted to northwestern Texas, western Oklahoma, and western Kansas for forage, erosion control, and turf purposes.

Breeder seed is maintained by Oklahoma AES.

(Crop Science 15:885)

CANARYGRASS

ALDEN (PI 251390) is a high-yielding cultivar of annual canarygrass developed by Minnesota AES. It was developed directly from a plant introduction from Iran.

Alden has large, oval panicles which do not readily shatter. It tillers profusely and lodges severely under conditions of high soil fertility and moisture.

Its seeds are suitable for feeding either caged or wild birds.

Breeder seed is maintained by Minnesota AES.

(Crop Science 13:771)

CLOVER

ARLINGTON is a northern anthracnose- and powdery mildew-resistant synthetic cultivar of red clover. It was developed cooperatively by the University of Wisconsin and ARS. It has Kenland, Pennscott, Rahn, Van Allen, Chesapeake, Dollard, and Wisconsin Mildew Resistant parentage.

The winter hardiness of Arlington is similar to Lakeland. It has longer field persistence than other cultivars. It has later maturity than most other cultivars and is adapted throughout the northcentral and northeastern clover regions.

Arlington has excellent resistance to northern anthracnose and powdery mildew and moderate resistance to bean yellow mosaic virus.

Breeder seed is maintained by University of Wisconsin. Other classes of seed are available in Idaho and Minnesota.

(Crop Science 13:771)

KENSTAR is a persistent, 10-clone synthetic cultivar of red clover developed cooperatively by Kentucky AES and ARS. Its clones were selected from Kenland and from breeding nurseries on the basis of persistency of stands.

Kenstar is similar to Kenland morphologically except for less leafmarking and less profuse flowering. Stand survival through the 3rd and 4th year is better than Kenland.

Its resistance to southern anthracnose and susceptibility to powdery mildew are similar to Kenland. Its area of adaptation will be similar to Kenland--the southcentral clover belt.

Breeder seed is maintained by Kentucky AES. Registered seed is available in Kentucky.

(Crop Science 13:772)

COTTON

ACALA 1517-75 is an American upland cotton cultivar developed by New Mexico AES. It has Acala 688 and Acala 9608 parentage.

Acala 1517-75 is shorter, fruits earlier, matures earlier, and makes less rank growth than other Acala 1517 cultivars. The boll size is slightly smaller than Acala 1517 V and Acala 1517-70. Acala 1517-75 has averaged 11 percent more yield than Acala 1517-70. It is well suited for mechanical harvesting.

Acala 1517-75 has excellent Verticillium wilt tolerance. It is susceptible to bacterial blight.

Acala 1517-75 seed cotton has 37.4 percent lint and 2.3 g of lint per boll. The 50 percent span length is 0.59 inches, and the 2.5 percent span length is 1.214 inches, with a uniformity index of 48.7. The fibers have a 4.0 Micronaire reading.

Breeder and Foundation seed are maintained by New Mexico AES.

ACALA 1517 E-1 is an American upland cotton cultivar developed by New Mexico AES. It has Acala 3080 and Pee Dee 2165 parentage.

Acala 1517 E-1 is 4 inches shorter than Acala 1517-70 and has narrower plants, smaller bolls, and more storm resistance. Acala 1517 E-1 has better performance than Acala 1517-70 under conditions of late planting, short seasons, dense populations, high fertility, or excess water. It is best suited to once-over harvesting. Acala 1517 E-1 has poor germination in cold soils.

Acala 1517 E-1, like Acala 1517-70, is highly tolerant to Verticillium wilt and resistant to bacterial blight races 1 and 2.

Acala 1517 E-1 seed cotton has 38.3 percent lint and 2.4 g of lint per boll. The 50 percent span length is 0.57 inches and the 2.5 percent span length is 1.16 inches, with a uniformity index of 49.1. The fibers have a Micronaire reading of 4.3.

Breeder and Foundation seed are maintained by New Mexico AES.

AZ 64 is an upland cotton cultivar with exceptional seedling vigor. It was developed by Arizona AES. The parentage includes Triple Hybrid, Sealand, Earlistaple, Hopi Acala, Acala, Earlifluff, and Lankart 57.

AZ 64 is sturdy, upright, and close fruited; thus is well adapted for spindle-type machine picking. Its plant height and maturity rank between the rainbelt cultivars and the Acala cultivars. AZ 64 has excellent seedling vigor and can be planted early. It is well adapted to areas where stand establishment is difficult. Its yield has been slightly higher than Deltapine 16.

AZ 64 is susceptible to Verticillium wilt.

AZ 64 has a high lint yield, strong fiber, desirable Micronaire range, and a good staple length comparable to other cultivars grown in Arizona.

Breeder seed is maintained by Arizona AES.

BRYCOT 4 is an upland cotton cultivar developed by W. R. Bryant, Leachville, Arkansas.

Brycot 4 is adapted to the Delta Region. It is considerably taller than Coker 310 and slightly shorter than Stoneville 213. The storm-resistant bolls produce 6.2 g of seed cotton containing 38 percent lint.

Brycot 4 is susceptible to Verticillium wilt, Fusarium wilt, and root-knot nematode.

The staple length is 1 3/16 inches. The 50 percent span length is 0.50 inches and the 2.5 percent span length is 1.10 inches. The fibers have a 4.45 Micronaire reading.

Stock seed is produced in Arkansas.

COKER 310 is an upland cotton cultivar developed by Coker's Pedigreed Seed Company, Hartsville, South Carolina.

Coker 310 is adapted to the Eastern, Delta, Central, El Paso, and San Joaquin areas. Its maturity is similar to Deltapine 16. Coker 310 has middense foliage. Its height is the same as Deltapine 16. The main stem is erect, and the leaves are pubescent. The open, nonpitted bolls have four to five locules. There are 38 seeds per boll. Each boll produces 6.2 g of seed cotton which has 39 percent lint.

Coker 310 is tolerant to Verticillium wilt, Fusarium wilt, and root-knot nematodes. It is susceptible to bacterial blight, Phymatotrichum root rot, and most insects.

The staple length is 1 1/8 inches. The 50 percent span length is 0.55 inches, and the 2.5 percent span length is 1.21 inches, with a uniformity index of 46. The fibers have a 4.40 Micronaire reading.

Stock seed is produced in Alabama, Georgia, Mississippi, South Carolina, and Texas.

DELTAPINE 55 is an upland cotton cultivar developed by Delta & Pine Land Company, Scott, Mississippi.

Deltapine 55 is adapted to all areas except the High Plains. It has not been tested in the El Paso area. It matures 4 days earlier than Deltapine 16. Deltapine 55 has an intermediate plant habit with sparse foliage. It is taller than Stoneville 213, but shorter than Deltapine 16. The main stem is erect and the leaves are pubescent. The open, finely pitted bolls have four to five locules. There are 33 seeds per boll. Each boll produces 5.4 g of seed cotton, which has 37 percent lint. Deltapine 55 yields 5 percent more than Deltapine 16.

Deltapine 55 is tolerant to Verticillium wilt and resistant to Fusarium wilt and root-knot nematode. It is susceptible to Rhizoctonia and most cotton insects.

The 50 percent span length is 0.54 inches. The 2.5 percent span length is 1.15 inches with a uniformity index of 47. The fibers have a 4.40 Micronaire reading.

Foundation and Registered seed are produced in Mississippi.

DELTAPINE 61 is an upland cotton cultivar developed by Delta and Pine Land Company of Scott, Mississippi.

Deltapine 61 is adapted to the Eastern, Delta, Central, San Joaquin, and El Paso areas. It matures 10 days later than Deltapine 16. Deltapine 61 has sparse foliage and is 4 inches taller than Deltapine 16. The main stem is erect and the leaves are smooth. The open, finely pitted bolls have four to five locules. There are 32 seeds per boll. Each boll produces 5.4 g of seed cotton which has 40 percent lint. Deltapine 61 yields 8 percent more than Deltapine 16.

Deltapine 61 is tolerant to Verticillium wilt and resistant to Fusarium wilt and root-knot nematode. It is susceptible to most insects.

The staple length is 1 1/16 inches. The 50 percent span length is 0.47 inches and the 2.5 percent span length is 1.10 inches, with a uniformity index of 43. The fibers have a 4.80 Micronaire reading.

Foundation seed is produced in Mississippi.

DELTAPINE 66 is an upland cotton cultivar developed by Delta and Pine Land Company, Scott, Mississippi.

Deltapine 66 is adapted to the Eastern, Delta, Central, San Joaquin, and El Paso areas. It matures 5 days earlier than Deltapine 16. The plant habit is intermediate with sparse foliage. Its height is similar to Deltapine 16. The main stem is erect and the leaves are smooth. The finely pitted, open bolls have four to five locules. There are 32 seeds per boll. Each boll produces 5.6 g of seed cotton, which has 40 percent lint. The yield is 10 percent more than Deltapine 16.

Deltapine 66 is tolerant to Verticillium wilt and resistant to Fusarium wilt and root-knot nematode. It is susceptible to boll weevil, fall armyworm, aphid, thrip, fleahopper, lygus, cutworm, leafworm, pink bollworm, and spidermite.

The staple length is 1 1/16 inches. The 50 percent span length is 0.46 inches and the 2.5 percent span length is 1.07 inches, giving a uniformity index of 43. The fibers have a 4.50 Micronaire reading.

DIXIE KING III is an upland cotton cultivar developed by Bobshaw Pedigreed Seed Company, Stoneville, Mississippi.

Dixie King III is adapted to the Eastern area. It matures 4 days earlier than Dixie King II. Dixie King III has intermediate foliage and is 2 inches taller than Dixie King II. The main stem is ascending and the leaves are pubescent. The open, finely pitted bolls have four to five locules. Each boll produces 6.9 g of seed cotton which has 38 percent lint. Dixie King III yields 7 percent more than Dixie King II.

Dixie King III is tolerant to Verticillium wilt and resistant to Fusarium wilt and root-knot nematode.

The 2.5 percent span length is 1.09 inches and the uniformity index is 47. The fibers have a 4.80 Micronaire reading.

Stock seed is prdouced in Alabama, Georgia, and Mississippi.

MCNAIR 612 is an upland cotton cultivar developed by McNair Seed Company, Laurinburg, North Carolina.

McNair 612 is adapted to the Eastern area and is not adapted to the Delta area. It matures 1 day earlier than Coker 310. McNair 612 has dense foliage and is 2 inches taller than Coker 310. The main stem is erect and the leaves are pubescent. The open, finely pitted bolls have four to five locules. There are 35 seeds per boll. Each boll produces 6.2 g of seed cotton which has 43 percent lint. McNair yields 3 percent more than Coker 310.

McNair 612 is resistant to Fusarium wilt. It is susceptible to Verticillium wilt, bacterial blight, root-knot nematode, Phymatotrichum root rot, Rhizoctonia, boll weevil, aphid, thrip, and spidermite.

The staple length is 1 3/16 inches. The 50 percent span length is 0.58 inches and the 2.5 percent span length is 1.16 inches, with a uniformity index of 50. The fibers have a 4.80 Micronaire reading.

Stock seed is produced in Georgia and North Carolina.

PIMA S-5 is an early maturing, American-Egyptian cotton cultivar developed cooperatively by ARS and Agricultural Experiment Stations of Arizona, New Mexico, and Texas. It has Pima S-4 and a breeding line parentage.

Pima S-5 has a higher yield and matures earlier than Pima S-4. It is especially well adapted to the lower elevations because of its greater heat tolerance during fruiting. Its growth habit and boll size are similar to Pima S-4.

Pima S-5 has a higher lint percentage than Pima S-4 and the 2.5 percent span fiber length is greater. Its 50 percent span fiber length, fiber strength, and Micronaire reading are similar to Pima S-4. Its yarn is slightly stronger than Pima S-4.

Breeder seed is maintained by the University of Arizona Cotton Research Center. Certified seed is available in Arizona.

STONEVILLE 213 is an upland cotton cultivar developed by Stoneville Pedigreed Seed Company, Stoneville, Mississippi.

Stoneville 213 is adapted to the Eastern and Delta areas. It is slightly taller than Deltapine 16. The main stem is erect and the leaves are pubescent. The open bolls produce 6 g of seed cotton, which is 37 percent lint.

Stoneville 213 is susceptible to Verticillium wilt, bacterial blight, anthracnose, Fusarium wilt, root-knot nematode, and Phymatotrichum root rot.

The staple length is 1 1/16 inches. The 50 percent span length is 0.52 inches and the 2.5 percent span length is 1.13 inches, with a uniformity index of 46. The fibers give a Micronaire reading of 4.62.

Stock seed is produced in Alabama, Arizona, Arkansas, Louisiana, Mississippi, and Missouri.

STONEVILLE 256 is an upland cotton cultivar developed by Stoneville Pedigreed Seed Company, Stoneville, Mississippi.

Stoneville 256 is adapted to the western, low, hot valleys. It is 2 inches taller than Deltapine 16. There are 30 seeds per boll. Each boll produces 5.9 g of seed cotton which has 39 percent lint. Stoneville 256 yields 24 percent more than Acala SJ-1.

The staple length is 1 3/32 inches. The 50 percent span length is 0.46 inches and the 2.5 percent span length is 1.12 inches, with a uniformity index of 44. The fibers have a 4.58 Micronaire reading.

Stock seed is produced in Arizona and Mississippi.

STONEVILLE 603 is an upland cotton cultivar developed by Stoneville Pedigreed Seed Company, Stoneville, Mississippi.

Stoneville 603 is adapted to the Eastern area. Its maturity is equal to Stoneville 213. The intermediate plant habit has middense foliage. Stoneville 603 is 1 inch shorter than Stoneville 213. The main stem is ascending and the leaves are pubescent. The open, nonpitted bolls have four to five locules. Each boll produces 6.1 g of seed cotton, which has 36 percent lint. Stoneville 603 yields 14 percent less than Stoneville 213.

Stoneville 603 is resistant to Fusarium wilt and root-knot nematode. It is susceptible to races 1 and 2 of bacterial blight.

The 2.5 percent span length is 1.10 inches. The fibers have a 4.40 Micronaire reading.

Foundation seed is produced in Mississippi and Certified seed is produced in Alabama.

DIGITGRASS

TRANSVALA is a sting nematode-tolerant and Pangola stunt virus-resistant cultivar of digitgrass developed by Florida AES. It is a vegetative cultivar which originated from collections made in Transvaal, Union of South Africa.

Transvala is a stoloniferous, perennial forage crop with abundant, narrow, upright leaves. A distinguishing characteristic of the cultivar is the presence of tubercle-based hairs on the upper surface of the leaf blades near the collar. It forms a dense sward more quickly than Pangola. Transvala outyields Slenterstem and Pangola in high-yielding environments and especially in the presence of virus and nematodes. Transvala is subject to winterkill from repeated frosts. Consequently, it should not be grown above 30 degrees latitude.

Transvala is resistant to Pangola stunt virus and is tolerant of sting nematode and leaf blight. It is susceptible to sugarcane aphid, two-lined spittlebug, leafhoppers, armyworms, and Rhodesgrass scale.

Its *in vitro* digestibility is higher than Pangola.

Foundation vegetative planting material is available from Foundation Seed Producers, Inc., Gainesville, Florida.

(*Florida AES Circular* S-222, 1973)

FESCUE

REDONDO is an Arizona fescue cultivar developed cooperatively by New Mexico AES, Colorado AES, New Mexico State Highway Department, and SCS. It was derived from a collection made in the ponderosa pine zone on the Baca Grant, west of Los Alamos, New Mexico.

Redondo is a densely tufted, perennial bunchgrass which grows to a height of 12 to 40 inches. Its natural range of adaptation is at elevations of 6,000 to 12,000 feet from Colorado to Texas and Nevada. It has an extensive, fibrous root system and can tolerate extended dry periods, especially in the spring months. Redondo is adapted to shallow, droughty soils. It is not adapted to saline, heavy, or poorly drained soils. Its use is for stabilization and range revegetation in the ponderosa pine zones.

Breeder and Foundation seed are maintained by Colorado AES.

FLAX

CULBERT (CI 2776) is a rust-resistant, spring flax cultivar developed cooperatively by Agricultural Experiment Stations of Minnesota, North Dakota, and South Dakota, and ARS. It has Windom and Bison 70 parentage.

Culbert matures early and has high seed yields. It has midsmall, blue flowers and is of medium height. Culbert has only fair tolerance to lodging.

Culbert is resistant to all North American races of flax rust. It also has excellent resistance to flax wilt. Culbert has fair tolerance to pasmo.

Culbert has midsmall, brown seeds. They have a high content of good drying oil.

Breeder seed is maintained by Minnesota AES. Other classes of seed are available in Minnesota, North Dakota, and South Dakota.

TAM F-201 (CI 2787) is a winter flax cultivar developed by Texas AES. It has Deoro and Dillman parentage.

TAM F-201 has white flowers and yellow seed. Its winter hardiness and seed yield are similar to Dillman. In southern Texas, TAM F-201 blooms later than Dillman and is taller. It tillers at the crown in the juvenile stage. The branches are less decumbent than Dillman.

TAM F-201 is resistant to races 295, 296, and 370 of flax rust.

Foundation seed is maintained by Texas A&M University. Other classes of seed are also available in Texas.

(*Crop Science* 14:604)

GRAMA

NOGAL is a black grama cultivar developed cooperatively by New Mexico AES and SCS. It was derived from a collection made along U.S. 85, 45 miles south of Socorro, New Mexico.

Nogal is a warm-season, low-growing, stoloniferous range grass. Nogal stolons spread better than Sonora. Its seed and forage production is higher than other cultivars.

Breeder and Foundation seed are maintained by the SCS Plant Materials Center, Los Lunas, New Mexico.

GUAR

ESSER is a cultivar of guar developed cooperatively by ARS, Texas AES, and Oklahoma AES. It has Brooks and Mills parentage and is a sister of Kinman.

Esser is similar to Brooks and Kinman in morphological characteristics and maturity. The seeds average 3.1 g/100 seeds. Esser has averaged 18.8 percent more yield than Brooks in Texas and 6.4 percent higher yields than Brooks in Oklahoma.

Esser has excellent disease tolerance and is especially adapted to areas where bacterial blight is prevalent.

The gum content and milling qualities are equivalent to other commercial cultivars.

Foundation seed is maintained by Texas AES and Oklahoma AES. Registered seed is also available in Texas.

(*Crop Science* 16:310)

KINMAN is a cultivar of guar developed cooperatively by ARS, Texas AES, and Oklahoma AES. It has Brooks and Mills parentage and is a sister of Esser.

Kinman, like Brooks, is glabrous and has a fine branching habit. It is taller and more coarsely stemmed than Brooks. Kinman matures 7 days earlier than Hall and at the same time as Brooks. Kinman has averaged 20.5 percent higher yields than Brooks and is well adapted to Texas and Oklahoma guar-growing areas.

Kinman has field tolerance to bacterial blight, but is damaged during severe epiphytotics.

Kinman seeds are slightly larger than Brooks averaging 3.3 g per 100 seeds. The gum content and milling qualities are similar to Brooks.

Foundation seed is maintained by Texas AES and Oklahoma AES. Registered seed is available in Oklahoma and Texas.

(*Crop Science* 16:310)

HOP

CASCADE is a hop cultivar with aroma and brewing characteristics similar to European cultivars. It was developed cooperatively by Oregon AES, Washington AES, ARS, in cooperation with the United States Brewers Association. Cascade has Fuggle and Serebrianka parentage.

Cascade has medium maturity but retains its quality for 3 weeks after maturity. The medium-sized cones are compact and easily picked.

Cascade has good resistance to crown and cone infections by downy mildew. It is tolerant to the prevalent strains of Verticillium wilt and is not seriously affected by prunus necrotic ringspot virus.

Oregon-grown Cascade hops contain 5.5 to 7.4 percent alpha acid, 4 to 6 percent beta acid, and 1 to 2 ml of oil per 100 g. Its cohumulone content is similar to Fuggle. The oil composition is similar to Fuggle, Styrian, and Tettnanger. Its storage stability is similar to Hallertauer.

Breeder clonal stock is maintained by Oregon AES.

(Crop Science 12:394)

COLUMBIA is a female, triploid, nearly sterile, aroma hop cultivar developed by ARS and Oregon AES, in cooperation with the U. S. Brewers Association. It has Fuggle T autotetroploid germplasm and Fuggle parentage.

Columbia is midlate in maturity. It has a vigorous growth habit with long sidearms. It has good cone set and clustering. Columbia is easily propagated by layering or from softwood cuttings. It sometimes forms a head of foliage with most of the crop near the top. Its genetic sterility results in seedless hops even when fertile pollen is used to stimulate cone size. Columbia produces medium-sized cones, which can be efficiently machine picked. Yields have been considerably higher than Fuggle. It is adapted to western Oregon, but not to the Yakima Valley, Washington.

Columbia is resistant to crown and cone infection by downy mildew. It is moderately susceptible to Verticillium wilt, especially in Washington. It carries prunus necrotic ringspot virus, but is not seriously affected by it.

The alpha acid content averages 56 percent greater than Fuggle and the beta acid content is 42 percent higher. The cohumulone content is higher than Fuggle and the essential oil content is slightly lower. Columbia produces 15 percent extract which is 50 to 55 percent alpha acids. Brewer experiences indicate it is an acceptable substitute for Fuggle. Its storage stability in the bale is better than Fuggle. The aroma is mild and similar to Fuggle.

Breeder stock is maintained by Oregon AES.

COMET is a high alpha acid hop cultivar developed cooperatively by ARS, Oregon AES, and Washington AES, in cooperation with the U. S. Brewers Association. It has Sunshine and wild North American male hop parentage.

Comet has a distinctive golden green foliage. Its cones are loose and shatter less when grown seedless. It has late maturity.

Comet has more tolerance to crown infection by downy mildew than Late Cluster. It is tolerant to prunus necrotic ringspot virus and to the prevalent strains of Verticillium wilt.

Higher yields of alpha acids resulting from higher concentration than other cultivars grown in the Yakima Valley is Comet's major attribute. Under continuous cold storage conditions, Comet retains its original alpha acid content much better than Bullion, but not quite as well as Late Cluster. Beer of good quality can be produced from either raw hop or extract from this cultivar. Comet is best adapted to the Yakima Valley, Washington.

Breeder stock is being maintained by Oregon AES.

(Crop Science 15:98)

WILLAMETTE is a female, triploid, nearly sterile, aroma hop cultivar developed cooperatively by ARS and Oregon AES, in cooperation with the U. S. Brewers Association. It has Fuggle T autotetraploid germplasm and Fuggle parentage. It is a sister of Columbia.

Willamette matures 5 days earlier than Columbia. The early, vigorous shoots grow 6 feet or more over the top trellis wire. It is easily propagated by layering or from softwood cuttings. Its cones are large and resemble seeded Fuggle cones. They can be efficiently machine picked. Yields have been considerably higher than Fuggle. Willamette is best adapted to the Willamette Valley, Oregon, and is not adapted to the Yakima Valley, Washington.

Willamette is resistant to cone infection by downy mildew, and moderately resistant to crown infection, similar to Bullion. It is susceptible to Verticillium, especially in Washington. It carries prunus necrotic ringspot virus, but is not seriously affected by it.

The alpha acid content is higher than Fuggle. Beta acid content is also higher. The cohumulone content is higher than Fuggle, and the oil content is identical to Fuggle. The aroma is pleasant and slightly spicy. Brewer experiences indicate it is an acceptable substitute for Fuggle. Its storage characteristics are similar to Fuggle.

Breeder stock is maintained by Oregon AES.

KOA HAOLE

HAWAIIAN GIANT K8 is a vigorous, Salvador-type perennial cultivar of *Leucaena latisiliqua* developed by Hawaii AES. It was selected from PI 263695, which was collected in Mexico.

Hawaiian Giant K8 has larger leaflets, leaves, flower pods, and seeds than the common types. It grows approximately three times faster and has use for fuel, forage, windbreaks, or nitrogen nurse crops. Continuous harvesting for forage at 8- to 12-week intervals results in high yields of leaf meal having 26 percent protein.

Breeder seed is being maintained by Hawaii AES.

(*Crop Science* 15:885 - 886)

KOLEAGRASS

PERLA is a large seeded cultivar of koleagrass with good seedling vigor. It was developed by SCS from a collection of Hardinggrass from Morocco.

Perla is similar to Hardinggrass. It is a tall, vigorous bunchgrass with short rhizones. Perla can be distinguished by its pubescent glumes. Its seedling vigor and fast recovery following early grazing well suit it to range uses in the Mediterranean-like climatic zone of California. Its palatability is superior to Hardinggrass. Perla may reseed itself naturally if not grazed.

Breeder and Foundation seed are maintained by SCS at the SCS Plant Materials Center, Lockford, California.

(Crop Science 14:339)

LESPEDEZA

SPREADING is a cultivar of virgata lespedeza developed by Georgia AES.

Spreading is a warm-season, perennial legume that has sufficient winter hardiness to be grown as far north as Tennessee to Oklahoma. The seedling vigor is comparable to other lespedezas. The vegetation is bronze colored. Spreading has prostrate, viny stems. The vegetation reaches a height of 1 foot. It is intended for highway and similar plantings.

Foundation seed is available in Georgia.

LOVEGRASS

BEND is a sand lovegrass cultivar developed cooperatively by Kansas AES, SCS, and ARS. It was selected from field collections made in the Arkansas and Cimarron River basins in Kansas and Oklahoma.

Bend is a perennial bunchgrass which is easily established. It has uniform maturity and is a good seed producer. It is best adapted to sandy soils for either forage production or stabilization seedings in the Arkansas River Basin and adjacent areas in north central Oklahoma.

Foundation seed is available at the SCS Plant Materials Center, Manhattan, Kansas. Registered seed is also available in Kansas.

PALAR is a cultivar of Wilman lovegrass developed cooperatively by SCS, Arizona AES, and ARS. It was selected from a plant introduction from Pullman, Washington.

Palar is a perennial, warm-season bunchgrass that will survive temperatures to 10 degrees F. It has excellent seedling vigor and drought tolerance. Palar is also very palatable. It has yielded more than other lovegrass cultivars. Palar is well adapted to desert grasslands of the Southwest having 12 to 16 inches annual precipitation and at elevations below 4,500 feet. Its primary use is for range seeding but it can also be used for conservation seedings.

Breeder and Foundation seed are maintained by SCS Plant Materials Center, Tucson, Arizona. Certified seed is available in Arizona.

LUPINE

HOPE is a winter-hardy, white lupine cultivar developed for winter cover and green manure purposes. It was developed by Arkansas AES. It was selected from a single lot of common white lupine on the basis of winter survival.

Hope retains a winter rosette growth form until spring, when its growth becomes quickly erect. Vernalization is required for flowering. The flowers and seeds are white. Hope is high in alkaloid content. Neither the forage nor seed should be consumed by livestock. The high alkaloid content serves as a natural herbicide when the decomposing green manure crop is incorporated ahead of cotton or soybeans.

Breeder seed is maintained by Arkansas AES.

(*Crop Science* 11:602)

MILLET

ABARR is a high-yielding cultivar of proso millet developed by Colorado AES. The cultivar is a single plant selection made from a commercial planting of common white proso.

Abarr matures earlier and more uniformly than common. It is more upright and has fewer axillary tillers. The seeds are longer. Grain yield has exceeded commercial lots of proso millet.

Breeder seed is maintained by Colorado AES. Registered seed is available in Colorado.

(Crop Science 15:886)

BUTTE is a palatable, head-type foxtail millet cultivar developed by Colorado AES. It is a bulk selection from the Russian cultivar, Harkovakaja.

Butte is shorter than Golden German and matures earlier. At maturity, the plants are purple tinged. The heads are long, tapered, moderately lobed, and small in diameter.

Butte is preferred over other cultivars by birds in taste-preference tests. The cultivar is expected to be used by the birdseed industry of northeastern Colorado.

Breeder seed is being maintained by Colorado AES.

(Crop Science 15:886)

CERISE proso millet was developed by Nebraska AES. The initial seed source was selected from P.I. 170603.

Cerise is a red-seeded, open-panicle millet most similar to Turghai. It heads slightly earlier than Turghai and may yield slightly more than Turghai.

Its seed is intended primarily for caged or wild bird feed, but could also be used for both food and livestock feed purposes.

Breeder seed is maintained by Nebraska AES. Registered seed is available in North Dakota and South Dakota.

(Crop Science 15:98)

DAWN is a cultivar of proso millet developed by Nebraska AES. It was selected from an introduction from Russia.

Dawn is white seeded with a closed panicle. It has short height, compact panicles, and uniform white seed color. It can be direct-harvested. Yields have been erratic and are less than Panhandle in narrow nursery plots. Its yield was better in wider plots. The seed is used primarily for caged bird and wild bird feed but can also be used for human food and livestock feed.

Breeder seed is maintained by Nebraska AES.

DOVE is an early maturing cultivar of proso millet developed by Georgia AES.

Dove is tall and upright with very little tillering. The leaves are pale or yellow. The forage is stemmy rather than leafy. Seeds are light straw color.

GAHIA-3 is a late-maturing pearl millet cultivar developed cooperatively by ARS and Georgia AES. It is a hybrid produced from Tift 23A and Tift 186.

Gahia-3 is a medium-stemmed, leafy cultivar with smooth leaves and stems. Its nodes and sheaths are reddish color. The seedlings are vigorous, hence it can be seeded by grain drill. Its late maturity allows more grazing in late summer. Gahia-3 has yielded from 10 to 20 percent more than other commercial cultivars with a larger share of the increased yield derived from the third cutting.

Gahia-3 is resistant to sting nematodes and lesion nematodes. It is immune to Pirricularia grisea.

Certified seed is availabe in Arizona.

MINCO is a high-yielding, white proso millet cultivar developed by Minnesota AES. It is a single-plant selection from common white proso millet.

Minco has a one-side, contractum panicle. The plants are pubescent. In comparison with other cultivars, Minco matures later and has less lodging. It is of medium height.

Minco is tolerant of atrazine and can be used in rotations where the previous crop was treated with atrazine.

The test weight is higher than other cultivars. It is intended for caged and wild birds, but can also be used for food and livestock feed purposes.

Breeder seed is maintained by Minnesota AES.

SNOBIRD is a white-seeded cultivar of proso millet developed by Minnesota AES. It was selected from white proso millet as a bulk of 52 lines of above-average yield.

Snobird is similar to common white proso in height, maturity, lodging, and seed size. It has a one-sided panicle and is more uniform than common. Its use is for caged and wild bird feeds, but can also be used for food and livestock feed.

Breeder seed is maintained by Minnesota AES. Registered seed is available in North Dakota, and Certified seed is available in Minnesota and North Dakota.

(Crop Science 13:771)

TIFLEAF-1 is a dwarf pearl millet cultivar developed by Georgia AES. It is a hybrid, having Tift 23DA and Tift 383 parentage.

Tifleaf-1 is homozygous for the d_2 gene and is only half the height of normal pearl millet cultivars. Its leaves are normal size, hence its forage is higher in leaf content. It is also more lodging-resistant.

Tifleaf-1 is moderately resistant to leaf spot.

Certified seed is available in Georgia.

MINT

TODD'S MITCHAM is a Verticillium wilt-resistant cultivar of peppermint developed by A. M. Todd Company, Kalamazoo, Michigan. It was derived from Mitcham by a mutation breeding and screening program.

Todd's Mitcham is similar to Mitcham except for darker green foliage color, smaller leaves, more erect and less branched growth habit, and earlier plant maturity. Its yield is equivalent to Mitcham and considerably higher in the presence of Verticillium wilt.

The oil from Todd's Mitcham is qualitatively equal to Mitcham based on organoleptic and gas chromatographic tests.

Planting stock can be obtained from Oregon State University; Irrigated Agriculture Research and Extension Center, Prosser, Washington; Washington Department of Agriculture, Yakima; Purdue University; or Michigan State University.

(Crop Science 12:128)

MUHLY GRASS

EL VADO is a spike muhly cultivar developed cooperatively by New Mexico AES, Colorado AES, New Mexico State Highway Department, and SCS. It was derived from a collection made west of Park View, New Mexico, in a ponderosa pine, blue grama, and little bluestem community.

El Vado is a warm-season, perennial, tufted bunchgrass. It forms a rather hard crown. The leaves are rough and wiry. The culms reach a height of 8 to 16 inches. The panicles are most similar to timothy or wolftail. El Vado is best adapted to the upper pinyon-juniper and pondrosa pine zones at 3,800 to 9,000 foot elevations in the southern Rocky Mountains. El Vado has superior seed production and high forage production in comparison with other lines of spike muhly. It is recommended for soil stabilization and range revegetation, especially after brush removal or fires. El Vado is very palatable to all classes of livestock.

Breeder seed is maintained by SCS Plant Materials Center, Los Lunas, New Mexico.

OATS

AMITY is a winter, white oat cultivar developed by Oregon AES. It has Grey Winter and S-225 parentage.

Amity has an erect, narrow panicle with plump kernels. It has intermediate height. It is a late-maturing cultivar. Amity was selected on the basis of good straw strength and high yield. It has outyielded all other cultivars in western Oregon. Amity has more winter hardiness than Powys.

Breeder seed is maintained by Oregon AES. Certified seed is also available in Oregon.

ASTRO (CI 9160) is a high-yielding, spring, white oat cultivar with small kernels. It was developed by Cornell University AES. Astro has Alamo, Garry Sel. 5, Goldwin, Victoria, and Rainbow parentage. It is a sister of Orbit.

Astro has short, stiff straw and early maturity. The kernels of Astro are smaller than Orbit, but the test weights are similar. Astro has yielded slightly more than Orbit. The panicle is less open than Orbit.

Astro has the AB genes for stem rust resistance. It is also resistant to smut and crown rust.

Breeder seed is maintained by Cornell University AES. Other classes of seed are available in northeastern and north central oat-growing states.

(Crop Science 14:605)

CHECOTA (CI 8311) is a winter, yellow oat cultivar developed by Oklahoma AES. It has Arlington and Wintok parentage.

Checota has midseason maturity. It tillers well and has stiff straw. The panicles are equilateral. Checota has yielded more than Cimarron and Forkedeer in Oklahoma tests. Checota is not as winter hardy as Cimarron or Forkedeer.

The test weight is lower than Cimarron or Forkedeer.

Breeder seed is maintained by Oklahoma AES.

(Crop Science 11:134)

CHIEF (CI 9080) is a lodging-resistant, spring yellow, oat cultivar developed by South Dakota AES. It has Clintland 64 and Garland parentage.

Chief is midseason in maturity. It is taller than Garland, but has better straw strength. Its yields have been slightly higher than other cultivars in South Dakota tests.

Chief is resistant to many crown rust races, but has a variable reaction to race 264B. It is susceptible to stem rust races 31 and 94.

Breeder seed is maintained by South Dakota State University. Other classes of seed are available in Illinois, Iowa, Minnesota, North Dakota, and South Dakota.

(Crop Science 14:127)

CHILOCCO (CI 8183) is a heavy-test weight, winter, yellow oat cultivar developed by Oklahoma AES. It has Wintock Early Selection and LeConte parentage.

Chilocco has midseason to early maturity. It tillers well and has stiff straw. The panicles are equilateral. Chilocco has yielded more than Forkedeer in Oklahoma tests. Its lodging resistance is much better than Cimarron or Forkedeer. The winter hardiness of Chilocco is superior to all other cultivars grown in Oklahoma.

The test weight is higher than Cimarron and Forkedeer.

Breeder seed is maintained by Oklahoma AES. Foundation or Registered seed is available in Kansas and Oklahoma.

(Crop Science 11:134)

COKER 227 is a winter oat cultivar developed by Coker's Pedigreed Seed Company, Hartsville, South Carolina.

Coker 227 has high yields of both forage and grain. Its medium-height straw is lodging resistant. It tillers well. Coker 227 is adapted to the southeastern oat-growing areas.

Coker 227 is resistant to crown rust, loose smut, Victoria blight, and culm rot. It is moderately resistant to soil-borne mosaic and tolerant to barley yellow dwarf virus.

Stock seed is produced in Alabama, Arkansas, Georgia, North Carolina, South Carolina, and Virginia.

CUMBERLAND (CI 9702) is a high-yielding, winter oat cultivar developed by Tennessee AES. It has Tennessee 410-76, Dubois, Santa Fe, and Fulivin parentage.

Cumberland has both the semi-prostrate seedling growth habit and short, stiff straw of Blount. It has more winter hardiness than Blount and matures 1 day earlier. Cumberland is very high yielding in Tennessee, averaging 28 percent more than Blount. It is expected to replace Blount and to be used for fall and early spring grazing, forage, and grain.

The test weight is below Blount but is acceptable.

Breeder seed is maintained by Tennessee AES. Other classes of seed are also available in Tennessee.

DAL is a spring oat cultivar developed by Wisconsin AES. It has Beedee and 660 parentage. Dal is similar to Froker in maturity and yield.

Dal is resistant to smut and has AB genes for stem rust resistance. It has good leaf rust resistance.

Dal has high test weight. The groat protein content is higher than Froker.

Stock seed is widely available in the north central and northeastern oat-growing states.

ELAN (CI 8443) is an early-maturing, high-yielding, winter oat cultivar developed by Georgia AES. It has Suregrain, Landhafer, Mindo, Hajira, Joanette, Andrew, Coker 57-11, and Florida 500 parentage.

Elan has short, strong straw and is high yielding. Its early maturity allows it to be double cropped in front of soybeans or sorghum. It has good winter hardiness and is adapted to the Coastal Plain and Piedmont areas of Georgia.

Elan is resistant to races 203, 216, 290, and 326 of crown rust. It is resistant to races 7AF and 8AF of stem rust and to Victoria blight. It is not seriously damaged by Helminthosporium leaf blotch. Elan is susceptible to barley yellow dwarf virus and soil-borne mosaic virus.

Breeder seed is maintained by Coastal Plain Experiment Station, Tifton, Georgia. Other classes of seed are also available in Georgia.

(*Crop Science* 12:127)

GEORGIA 7199 (CI 8541) is a winter oat cultivar best adapted for forage purposes. It was selected from the Fairfax and Florida 500 cross made by Georgia AES.

Georgia 7199 is well adapted to the Piedmont and Coastal Plain of Georgia. It will probably replace Fairfax and Jefferson for forage purposes. It has produced 10 to 12 tons of silage or 2 1/2 to 3 1/2 tons of hay per acre.

Georgia 7199 has excellent crown rust resistance.

Foundation seed is available in Georgia.

GRUNDY (CI 8445) is a short, stiff-strawed, spring, yellow oat cultivar developed cooperatively by Iowa AES and ARS. It has Clintland and Garry-5 parentage.

Grundy matures early. It has semicompact panicles. In Iowa tests, Grundy has outyielded other early cultivars. Its lodging resistance is equal to Clintford and Tippecanoe.

Grundy has resistance to races 6, 7, 7A, and 8 of stem rust, but is susceptible to races 6AF and 6AFH. It is tolerant to races 294, 321, and 325 of crown rust. Grundy is susceptible to yellow dwarf virus and the Clintland race of loose smut.

The grain has test weight ranging from medium to heavy. It is satisfactory for commercial milling.

Breeder seed is maintained by Iowa AES. Other classes of seed are available in Iowa, Minnesota, and Nebraska.

(Crop Science 12:256)

KORWOOD (CI 9167) is a spring, white oat developed by Michigan AES. It has Beaver, Garry, Clintland, and CI 5163 parentage.

Korwood outyields Garry and is shorter. Its test weight is higher than Garry, but less than Mariner.

Korwood has field tolerance to Septoria black stem and barley yellow dwarf virus. It is susceptible to common races of leaf rust and stem rust.

Foundation seed is maintained by Michigan Foundation Seed Association. Certified seed is available in Michigan.

(Crop Science 15:99)

MACKINAW (CI 9166) is a spring, white oat developed by Michigan AES. It has Beaver, Garry, Clintland, CI 5103, and CI 5163 parentage.

Mackinaw is tall, but has improved lodging resistance and good test weight. Its yield is similar to Garry.

Mackinaw has field tolerance to Septoria black stem and is moderately susceptible to barley yellow dwarf virus.

Foundation seed is maintained by Michigan Foundation Seed Association. Certified seed is available in Michigan.

(*Crop Science* 15:99)

MARINER (CI 9165) is a spring, white oat developed by Michigan AES. It has Garry, Beaver, Clintland, and CI 5103 parentage.

Mariner is midway between Garry and Clintland 64 in maturity, height, and lodging resistance. It has higher yield and test weight than Garry. It develops many tertiary kernels.

Mariner has field tolerance to Septoria black stem and barley yellow dwarf virus under Michigan conditions. It is susceptible to common races of leaf rust and stem rust.

Foundation seed is maintained by Michigan Foundation Seed Association. Certified seed is available in Michigan.

(*Crop Science* 15:99)

NOBLE (CI 9194) is a spring, yellow oat cultivar developed by Purdue University AES and ARS. It has a complicated parentage.

Noble is an improved Tippecanoe type. It is high yielding and has plump kernels.

Noble is resistant to prevalent races of loose smut in Indiana. It is moderately resistant to barley yellow dwarf virus. Noble is susceptible to current races of rust.

Noble has high test weight. The protein content is higher than other cultivars in Indiana.

Stock seed is available throughout the Midwest, Pennsylvania, and New York.

OTANA (CI 9252) is a high-yielding, spring, white oat cultivar developed by Idaho AES. It has CI 5345 and Zanster parentage.

Otana matures 2 days earlier than Cayuse and is 5 inches taller. It is high yielding and has higher forage yields than Park or Basin. It is recommended for statewide dryland use in Montana and for all irrigated areas of Montana except the northeast.

Its test weight is heavier than Cayuse by 4 pounds per bushel.

Foundation seed is available from Montana State University. Registered seed is available from Montana Seeds, Inc.

OTEE (CI 9086) is a high-protein, spring oat cultivar developed cooperatively by Illinois AES and ARS. It has Albion, Newton, Minhafer, and Jaycee parentage.

Otee is most similar to Jaycee. It has early maturity, short straw, and good lodging resistance especially after ripening.

Otee is resistant to older races of crown rust and stem rust, but is susceptible to some of the new races. It has superior tolerance to barley yellow dwarf virus. It is also resistant to prevailing races of covered smut and loose smut.

The groats have protein two or three percentage points higher than other cultivars.

Breeder seed is maintained by Illinois AES. Other classes of seed are available throughout the northcentral oat region.

(Crop Science 13:397)

RANDOM (CI 9081) is a spring oat variety released by the Plant Products Division and Lacombe Research Station of Agriculture, Canada. It has Glen and Pendek parentage.

Random is high yielding throughout western Canada. It has short, strong straw with an upright short equilateral panicle. Its kernels are large, but the hull percentage is medium and the test weight is low.

Random is susceptible to both crown rust and smut. It should not be grown where either disease is a problem.

Breeder seed is maintained at the Agriculture Canada Research Station in Regina. Certified and Registered seed are available in Canada and North Dakota.

(Crop Science 15:98)

SALEM (CI 9204) is a late-maturing, winter, red oat, well adapted to the Piedmont region. It was developed by North Carolina AES. It has Goodfield and Moregrain parentage.

Salem matures considerably later than Yancey and some later than Canolee. Maximum tiller development and grain filling occurs in the Piedmont environment. It has the same winter hardiness as Canolee and Yancey. The juvenile plant growth is semiprostrate. The straw strength is good. Twisted and slightly bent awns are common. Yields of Salem have exceeded both Canolee and Yancey by 24 percent in the Piedmont.

Salem has good resistance to soil-borne mosaic. It is resistant to some races of crown rust.

Its kernels are short and midplump with test weight exceeding both Canolee and Yancey.

Breeder seed is being maintained by North Carolina AES. Foundation seed is available in North Carolina.

(Crop Science 15:735)

SPEAR (CI 9203) is a high-protein, spring, white oat cultivar developed by South Dakota AES. It has Neal and Clintland 64 parentage.

Spear has midseason maturity similar to Chief and Garland. Its height is midtall, similar to Diana and Garland. It has superior straw strength. Yields in South Dakota have been high.

Spear is moderately resistant to crown rust, including race 264B. It is susceptible to stem rust race 31. It has good barley yellow dwarf virus resistance.

The groat protein content is higher than all other cultivars except Otee. The groat oil content is also high. Test weight is high and the milling qualities are good.

Stock seed is available in Iowa, Minnesota, Nebraska, and South Dakota.

STOUT (CI 9195) is a short, stiff-strawed, spring oat cultivar with a compact panicle. It was developed cooperatively by Purdue University AES and ARS. Stout has Milford, Clintland 64, Shield sib, PI 174544, Ukraine, and six unnamed parents in its parentage.

The coleoptile of Stout is white. Its culms and leaves are erect. The compact panicle form is equilateral. The lemma and palea are light brown to white. Stout's yield is equal to or better than Clintford. The straw is short and stiff.

Stout has the B and D genes for stem rust resistance. It is resistant to crown rust and the races of loose smut prevalent in Indiana. It is susceptible to barley yellow dwarf virus.

The grain is plump with good test weight. Protein content of the groat is 17 to 18 percent.

Breeder seed is maintained by Purdue University AES. Other classes of seed are available throughout the northcentral oat-growing region.

(Crop Science 14:906)

TAM O-301 (CI 9198) is a crown rust-resistant, winter, red oat cultivar developed by Texas AES. It has Coronado sib, Ora, Cortez sib, and PI 295919 parentage.

TAM O-301 resembles Cortez. It is slightly taller than Cortez and has good straw strength. The panicle is equilateral. The kernels are large and plump. The upper leaf surfaces have prominent pubescence. The yield of TAM O-301 is equal to Coronado in the absence of crown rust.

TAM O-301 is resistant to crown rust in south Texas and out-yields any commercial cultivar in its presence. It also has moderate resistance to current races of stem rust. TAM O-301 sustains more winter injury than Coronado or Cortez and should not be grown north of Waco.

Foundation seed is maintained by Texas AES. Registered seed is also available in Texas.

(Crop Science 14:127-128)

TAM 0-312 (CI 9199) is a crown rust-resistant, winter, yellow oat cultivar developed by Texas AES. It has Coronado sib, Ova, Cortez sib, Alamo-X, and PI 296244 parentage.

TAM 0-312 resembles Coronado. It is taller than Coronado and has good straw strength. The panicle is equilateral, and the kernels are large and plump. The leaf blades are glabrous, except for a low percentage, which are pubescent. Grain yields have been equal to other cultivars when crown rust was not severe, and superior when grown in heavy crown rust epidemics.

TAM 0-312 is resistant to crown rust in south Texas. It is susceptible to oat stem rust. TAM 0-312 has the same cold tolerance as Coronado. It should not be grown north of Dallas.

Foundation seed is maintained by Texas AES. Other classes of seed are available in Alabama, Arkansas, Florida, and Texas.

(*Crop Science* 14:128)

TRIO (CI 7698) is a high-yielding, spring, yellow oat cultivar developed cooperatively by Kansas AES, Nebraska AES, and ARS. It has Improved Garry, Landhafer, Mindo, Hijara, Joanette, and Andrew parentage.

Trio is similar to Andrew, but has shorter and stiffer straw. Its juvenile growth is upright. There is little or no pubescence on the sheath, leaf, or nodes. It has been consistently high yielding in Kansas and Nebraska. The test weight is only average.

Trio is highly resistant to smut and has ABD genes for leaf rust resistance. It has some resistance to barley yellow dwarf virus.

Foundation seed is maintained by Kansas AES and Nebraska AES. Certified seed is available in Kansas, Nebraska, and South Dakota.

(*Crop Science* 13:581)

WINDSOR (CI 9140) is a high-yielding, winter oat cultivar developed by Virginia Polytechnic Institute. It has Victorgrain 48-93 and Cimarron parentage.

In comparison with Roanoke, Windsor is more winter-hardy, shorter, stiffer strawed, and earlier maturing. It also yields from 20 to 40 percent more than Roanoke. Its glumes are reddish yellow and the lemmas are grayish red to grayish yellow.

Windsor is moderately resistant to soil-borne mosaic, but is susceptible to crown rust.

Breeder seed is maintained by Virginia Polytechnic Institute. Other classes of seed are available in North Carolina and Virginia.

(Crop Science 13:581-582)

WRIGHT is a spring oat cultivar developed by Wisconsin AES. It has Trispernia, Belar, and Beedee parentage.

Wright is midlate in maturity, maturing 3 days earlier than Dal and Froker. It is tall and has good straw strength. Yields have been high in Wisconsin.

Wright has good resistance to smut and leaf rust. It has moderate stem rust resistance. It has some tolerance to barley yellow dwarf virus.

Wright has good test weight. Its groats are high in protein. The grain color is light tan.

Stock seed is available in Minnesota, North Dakota, South Dakota, and Wisconsin.

ORCHARDGRASS

ABLE is an orchardgrass cultivar developed by Farmers Forage Research Cooperative, West Lafayette, Indiana. It is four-clone synthetic.

Able is late maturing, similar to Pennlate. Its yield is low, like other late cultivars. It performs well in mixtures with alfalfa and red clover. Its stand persistence is superior to other late-maturing cultivars.

The disease resistance to Able is equal to other late-maturing cultivars.

Certified seed is produced in Oregon.

KAY is an orchardgrass cultivar developed by CDA. It is a composite of introductions from Russia.

Kay is tall growing and has large panicles, stems, and leaves. It has excellent spring vigor and makes good growth in cool, wet periods. It is slow growing in hot and dry conditions. Kay has excellent winter hardiness.

Kay has some resistance to rust.

Certified seed is available in Canada.

FENN is a winter-hardy field pea cultivar developed by Idaho AES. It is a selection from Austrian Winter.

Fenn has purple blossoms, indeterminate flowering, and a high percentage of triple-podded peduncles. The seed coats are speckled and the cotyledons are yellow. The seed yields have been higher than Austrian Winter.

Fenn is moderately resistant to Ascochyta found in northern Idaho. The seeds are large and have a higher protein content than Austrian Winter.

Breeder seed is maintained by Idaho AES.

(Crop Science 12:127)

GARFIELD is a dry, field pea cultivar developed cooperatively by ARS and Washington AES. It was selected from PI 244104.

Garfield has white flowers borne singly or doubly. The pods are straight with six or seven seeds. The flowers are borne on the 14th node, white Alaska flowers are on the 12th node. Therefore, Garfield matures later than Alaska. The vine habit is indeterminate and non-branching, with straight internodes. Garfield's height is 3 inches greater than Alaska. Garfield has averaged 14 percent greater yield than Alaska.

Garfield is resistant to Fusarium wilt race 1, but is susceptible to races 2 and 5. Its reactions to powdery mildew, seed bleach, and mechanical damage are similar to Alaska.

The seeds are dark green, smooth, and round with green cotyledons. Their average weight is 0.22 g.

Breeder and Foundation seed are maintained by Washington State Crop Improvement Association.

LATHCO is a flatpea (Lathyus sylvestris L.) cultivar suitable for vegetative cover. It was derived from a field collection in Lewis County, Washington, by SCS.

Lathco is a viny, rhizomatous, perennial legume with tendril-bearing stems. It normally forms a mat of vegetation 2 to 3 feet deep, but will climb to a height of 6 feet if support is available. Lathco is winter-hardy, drought-tolerant and is well adapted to most soils associated with mine spoils, road-banks, barrow pits, and rights-of-way.

It will not tolerate poorly drained soils.

Breeder seed is maintained by SCS. Foundation seed is available in New York and Certified seed is available in New York and Pennsylvania.

(Crop Science 13:130)

TRACER is a dry, field pea cultivar developed cooperatively by ARS and Washington AES. It was selected from a seedlot of New Line Alaska field peas originating from Canners Seed Corporation of Lewisville, Idaho.

Tracer has an indeterminate vine habit with no branching and straight internodes. The flowers are white and are borne triply or doubly. The pods are straight with four to five seeds. Tracer has averaged 46 percent yield advantage over Lilaska. Tracer flowers on the 13th node compared with the 9th node for Lilaska. It matures 4 days later than Lilaska.

Tracer is resistant to Fusarium wilt race 1, but is susceptible to races of 2 and 5. It is tolerant to pea root rot.

The seeds are green, round, and smooth. Their average weight is 0.15 g.

Breeder and Foundation seed are maintained by Washington State Crop Improvement Association.

ALTIKA is a small-seeded, Virginia peanut developed by Florida AES. It has two experimental lines in its parentage.

Altika has a bunch growth habit. The pods are two-seeded. The apical seed is elongated and flattened at the basal end. The light pink seed coats are indented, in contrast to the unblemished seed coats of Florigiant. In Florida, Altika matures later than Florigiant, but in Guyana it matures earlier. Altika outyields local Guyana cultivars but it yields less than Florigiant in Florida. The cultivar is well adapted to the intermediate savannahs of Guyana.

Altika has more resistance to Cercospora leaf spot than AK 62.

The shelling percentage of Altika is lower than Florigiant. The iodine number is lower and the oleic-linoleic acid ratio is higher than Florigiant. Altika has acceptable blanching, roasting, and flavor characteristics.

Breeder seed is maintained by Florida AES. Foundation seed is available in Florida.

(Crop Science 14:339)

GK-3 is a Virignia peanut cultivar developed by Gold Kist Inc., Atlanta, Georgia.

GK-3 has a prostrate growth habit with profuse branching. In the Southeast, it matures 5 days earlier than Virginia 61R, and 5 days later than Florigiant. Over a 5-year period, GK-3 has averaged 9 percent more yield than Florigiant. There are two seeds per pod, with medium pod constriction.

GK-3 is susceptible to southern stem rot, southern leaf spot, thrips, leafhopper, southern corn rootworm, and lesser cornstalk borer.

The pink seedcoats are smooth and blemished. The seeds are cylindrical with tapered ends. The 100-seed weight is 93 g. The oil content, protein content, and iodine number are lower than Florigiant. The oleic-linoleic acid ratio is higher.

Foundation or Registered seed is produced in Georgia, North Carolina, and Virginia.

GK-19 is a Virginia peanut cultivar developed by Gold Kist Inc., Atlanta, Georgia.

GK-19 has a semierect growth habit with profuse branching. In the Southeast, it matures 5 days before Florunner and 10 days later than Starr. GK-19 has yielded 21 percent more than Starr. There are two seeds per pod with only shallow pod constriction.

GK-19 has resistance to the pod rot complex. It is susceptible to southern stem rot, southern leaf spot, thrips, leafhopper, and lesser cornstalk borer.

The seed coats are brown, smooth, and blemished. The seeds are cylindrical with tapered ends. The 100-seed weight is 59 g. The oil content, protein content, and iodine number are slightly below Starr. The oleic-linoleic acid ratio is higher.

Stock seed is produced in Georgia, Oklahoma, and Texas.

NC 6 is a prostrate, Virginia peanut cultivar developed by North Carolina State University. It has VA 61R and a southern corn rootworm-resistant breeding line parentage.

NC 6 is most similar to Florigiant and is adapted to the Virginia-Carolina peanut area.

NC 6 is highly resistant to southern corn rootworm.

Stock seed is maintained by North Carolina State University. Seed for grower use will be available in 1978.

NC-FLA 14 is a large-seeded, Virginia peanut cultivar developed cooperatively by North Carolina AES and Florida AES. It has Jenkins Jumbo and Florispan derivative parentage.

NC-FLA 14 has an erect, bunch growth habit. It matures early but holds its leaves longer than NC 17.

NC-FLA 14 is tolerant of southern corn rootworm, but is susceptible to southern stem rot.

NC-FLA 14 has larger fruit and seed than Florigiant, but its seeds are smaller than NC 17. Its hull is thicker and consequently has a lower shelling percentage than Florigiant. Its higher yields compensate for the low shelling percentage, so that the market value is still higher than other cultivars. Its oil content is comparable to NC 17 and Florigiant. It has a lower iodine value and a higher protein content. Its flavor is satisfactory.

Breeder seed is maintained by North Carolina AES and Florida AES. Registered seed is available in North Carolina.

(Crop Science 14:494)

NEW MEXICO VALENCIA A is a Valencia peanut cultivar with higher proportions of three- and four-kernel pods. The cultivar was selected from New Mexico Valencia by New Mexico AES.

New Mexico Valencia A is similar to New Mexico Valencia except for 19 percent increased yield and a higher proportion of pods having three to four kernels.

Both varieties are equally susceptible to blackhull.

Breeder seed is maintained by New Mexico AES. Other classes of seed are also available in New Mexico.

(Crop Science 12:256)

SHULAMIT is a peanut cultivar developed by Hazera Seed Ltd., Haifa, Israel. It has Florispan and Florigiant parentage.

Shulamit has an erect growth habit with profuse branching. In Virginia and North Carolina, it matures 10 days earlier than NC 5 and 2 days later than NC 2. Shulamit has yielded 5 percent more than NC 2. There are two seeds per pod with medium constriction.

Shulamit is susceptible to southern stem rot, early leaf spot, southern leaf spot, thrips, leafhopper, and southern corn rootworm.

The seed coats are pink, smooth, and uniformly colored. The seeds are cylindrical with tapered ends. The 100-seed weight is 85 g. The oil content is similar to Florigiant. The protein content and iodine number are lower than Florigiant.

Stock seed is distributed by Keel Peanut Company, Greenville, North Carolina. Registered and Certified seed are produced in North Carolina.

TAMNUT 74 is a high-yielding, Spanish peanut cultivar released cooperatively by Agricultural Experiment Stations of Georgia, Oklahoma, and Texas. It has Starr, Spantex, and a wild selection parentage.

Tamnut 74 has a maturity range of 120 to 130 days. It has outyielded other commercial cultivars in tests throughout Georgia, Oklahoma, and Texas.

Tamnut 74 pods are more symmetrical than Starr.

Tamnut 74 has pathogen and insect reactions similar to other Spanish cultivars.

Pod diameter is more uniform and the constriction diameter is larger than Starr. Its oil content has averaged 48.5 percent with an iodine number of 97 and a 1.28 oleic-linoleic ratio. Protein content has averaged 28.1 percent.

Breeder seed is being maintained by Texas AES at the Stephenville Field Station. Other classes of seed are available in Arizona, Georgia, Oklahoma, and Texas.

(Crop Science 15:603-604)

TIFSPAN is a high-yielding, Spanish peanut cultivar released cooperatively by Georgia AES, ARS, and Oklahoma AES. It has Argentine and Spanish 18-38 parentage.

Tifspan outyields Starr and Argentine. Its pods are longer than Starr and Argentine. It can be easily harvested mechanically and can be grown in multiple rows. Tifspan produces well under both rainfed and irrigated conditions.

The linoleic acid content and iodine number of Tifspan is slightly lower than Starr or Argentine. The oleic acid content and the oleic-linoleic acid ratio are higher than Starr or Argentine. All three cultivars have similar shelling and processing characteristics.

Breeder seed is maintained by the Georgia Coastal Plain Experiment Station. Registered seed is also available in Georgia.

(Crop Science 10:459).

VIRGINIA 72R is a late-maturing, Virginia peanut cultivar developed by Virginia AES. It has Virginia 61R and a large-seeded line in its parentage.

The growth habit of Virginia 72R is prostrate. The pods are two-seeded. The thick hull prevents excessive kernel damage during harvesting and cleaning. The seeds are elongated and have pink testa. Yields are exceptional when grown on coarse-textured soils.

Higher percentages of sound mature kernels and extra large kernels are produced by Virginia 72R than by NC5. The value of production per acre is therefore higher also. The crude protein averages 30.1 percent, while the 47 percent oil content is 1 percent less than NC5. The iodine number averages 100.

Breeder seed is maintained by Tidewater Research Station, Holland. Other classes of seed are available in North Carolina and Virginia.

(Crop Science 12:127)

RAPE

POLAR is a high-erucic acid cultivar of rape developed by University of Manitoba. It was selected from Polish.

Polar is similar to Echo in general appearance, height, maturity, and yield.

The seed oil content is 1.5 percent higher than Echo. The meal protein and erucic acid content are also slightly higher. The glucosinolate content of the meal is similar to Echo.

Breeder seed is maintained by University of Manitoba.

(Crop Science 11:134-135)

TURRET is an early-maturing cultivar of rape developed by University of Manitoba. It was selected from Target.

Turret matures earlier than other cultivars of rape in Canada. Its yields have also been higher, especially in eastern Canada. Turret is shorter than other cultivars.

The oil content of Turret seed is higher than other cultivars. Fatty acid composition of the oil and glucosinolate content of the meal are similar to other cultivars.

Breeder seed is maintained by University of Manitoba. Registered seed is available in Canada.

(Crop Science 11:134)

RICE

BONNET 73 (CI 9654) is a high-yielding, long-grain rice cultivar developed by Arkansas AES and ARS. It has Bluebonnet 50, Lacrosse, Zenith, Nira, Rexoro, and Texas Patna parentage.

In comparison with Starbonnet, Bonnet 73 is taller, earlier heading, and higher yielding. Bonnet 73 is awnless with occasional tip awns. Its panicles are longer and less erect. Lower amounts of nitrogen fertilizer are required for maximum yields. It tolerates high pH soils.

Bonnet 73 is moderately resistant to brown leaf spot.

The milling yields are less than Starbonnet, but the yield of milled rice per acre is higher. The cooking and processing qualities are similar to other major cultivars.

Breeder seed is maintained by Arkansas Rice Branch Experiment Station at Stuttgart. Other classes of seed are available in Arkansas and Mississippi.

(Crop Science 13:772-773)

BRAZOS (CI 9875) is a high-yielding, medium-grain rice cultivar developed cooperatively by Texas AES, ARS, and Texas Rice Improvement Association. Brazos has CI 9545 and Nova parentage.

Brazos is shorter than other medium-grain rice cultivars and has good lodging resistance. It threshes more freely than Vista. Brazos has been consistently high yielding. The ratoon crop yields less than Vista.

Brazos is similar to Nato in disease resistance except for better resistance to straighthead. It is resistant to sheath blight and moderately susceptible to stem rot and brown spot.

Most kernels of Brazos are translucent, with a few chalky ones. Its milling quality is acceptable, but the whole-grain milling yields are lower than Nato, Vista, or Saturn, and equal to Nova 66. Brazos has low amylose and a low gelatinizing temperature.

Breeder and Foundation seed are maintained by the Beaumont Research and Extension Center. Other classes of seed are available in Arkansas, Louisiana, and Texas.

(Crop Science 15:887)

CALROSE 76 (CI 9966) is a short-statured cultivar of medium-grain rice developed cooperatively by ARS, California AES, and California Cooperative Rice Research Foundation. It is an induced mutant of Calrose.

Calrose 76 is 10 inches shorter than Calrose and has more lodging resistance. Its awns are much longer than Calrose and CS-M3. Its maturity is similar to CS-M3. The panicle exertion is less than Calrose and CS-M3.

The brown kernel characteristics, milled kernel weight, milling yields, and amylose content of Calrose 76 are similar to CS-M3. Calrose 76 has a light brown pericarp and white, nonglutinous, nonaromatic endosperm. Its taste is indistinguishable from Calrose.

Breeder and Foundation seed are maintained by California Cooperative Rice Research Foundation, Biggs, California.

CS-S4 (CI 9835) is a short-grain rice developed cooperatively by the California Rice Research Foundation, California AES, and ARS. It has Caloro and a glabrous variety parentage.

CS-S4 has short awns. Heading time may be 2 to 3 days earlier than Caloro. The kernels are nearly glabrous and are smaller than Caloro.

The kernel weight is less than Caloro, but overall quality is similar to Caloro. It has yielded more than Caloro and is adapted to California rice-growing areas.

Foundation seed is maintained by California Rice Research Foundation. Registered and Certified seed are available in California.

(Crop Science 12:256-257)

DELLA (CI 9483) is a long-grain, scented rice developed cooperatively by Louisiana AES and ARS. It has Rexoro, Zenith, and Delitus parentage.

Della matures moderately early, comparably with Dawn, or in about 125 days. It is slightly taller than Dawn and is susceptible to straighthead and commonly occurring races of blast. Its yield averages 90 percent of Dawn.

Milling quality is better than Dawn. It has long-grain cooking quality, being less "dry" than some varieties. Its main quality attribute is a very distinctive flavor sought in the specialty trade.

Breeder seed is maintained at the Crowley Rice Experiment Station. Foundation seed has been allocated by the Louisiana Seed Rice Growers Association.

(Crop Science 13:773)

LABELLE (CI 9708) is a short-season, blast-resistant, long-grain rice cultivar developed cooperatively by ARS, Texas AES, and Texas Rice Improvement Association. It has Belle Patna and Dawn parentage.

Labelle is awnless and has faint pigmentation in the apiculus. It is shorter strawed than Belle Patna and heads 80 days after seeding. Its first crop yield is similar to Belle Patna, but the second crop is higher. Lodging is intermediate between Belle Patna and Bluebelle.

Labelle shows resistance to most international races of blast except IC-17. It is also resistant to straighthead and white tip. It has fair tolerance to high pH soils.

Labelle has high milling yields. Its light hull color is preferred by industrial processors of parboiled long-grain rice. Its amylose content ranges from 24 to 25 percent and the gelatinization temperature range is 70 to 74 degrees C.

Breeder seed is maintained by Texas A&M University Research and Extension Center at Beaumont. Other classes of seed are available in Arkansas, Louisiana, Mississippi, and Texas.

(Crop Science 13:773-774)

LEBONNET (CI 9882) is a long-grain rice cultivar with especially large grain size. It was developed cooperatively by Texas AES, ARS, and Texas Rice Improvement Association. It has Bluebelle, Belle Patna, and Dawn parentage.

Lebonnet has a straw-colored hull and colorless apiculus. Lebonnet is most similar to Bluebelle. It is more leafy than Bluebelle and relatively photoperiod insensitive. Lebonnet has the Dawn and Labelle resistance to *Piricularia oryzae*. It is also resistant to straighthead and white tip. It is susceptible to kernel smut and foliar diseases.

Its milled kernel is larger than any commercial cultivar. The milled grain is high in amylose and is an intermediate gelatinizing type.

Breeder and Foundation seed are maintained by the Beaumont Research and Extension Center. Other classes of seed are available in Arkansas, Louisiana, Mississippi, Missouri, and Texas.

(*Crop Science* 15:886)

M5 (CI 9964) is an early-maturing, medium-grain rice developed cooperatively by California AES, ARS, and California Cooperative Rice Research Foundation. It has CS-M3 parentage.

M5 is similar to CS-M3 except that it matures 10 to 12 days earlier. It is a tall cultivar with panicles completely exerted from the leaf sheath. M5 is sparsely awned. Its yields have been higher than Colusa and equivalent to CS-M3. It will probably replace the later-maturing varieties having equal yields.

M5 is moderately tolerant to stem rot and is probably susceptible to leaf and stem diseases common to the more humid areas.

M5's chemical properties are representative of medium-grain cultivars. Its taste is satisfactory.

Breeder and Foundation seed are being maintained by California Cooperative Rice Research Foundation at Biggs. Other classes of seed are available in California.

(*Crop Science* 15:887)

NORTAI (CI 9836) is a purple-panicled, short-grain rice cultivar developed cooperatively by ARS and Arkansas AES. It has Northrose and a short-grain, pubescent introduction from Taiwan in its parentage.

Nortai is awnless and glabrous except for hairs on the lemma keel. The panicles contain pronounced purple pigmentation at heading. It diminishes at maturing. The height of Nortai is similar to Starbonnet. It heads 6 days earlier than Caloro and is photoperiod insensitive. Its yields are similar to Caloro. High rates of nitrogenous fertilizer are required for maximum yields.

Nortai has greater field resistance to blast and straighthead than Caloro.

The milling yield is excellent. The milled kernels are less chalky than Caloro. Its overall cooking and processing characteristics are similar to Caloro.

Breeder seed is maintained by Arkansas Rice Branch Experiment Station at Stuttgart. Foundation and Certified seed are available in Arkansas.

(Crop Science 13:774)

NOVA 76 (CI 9948) is a blast-resistant, medium-grain rice cultivar developed cooperatively by Arkansas AES and ARS. It has Northrose, Zenith, and Nova 66 parentage.

Nova 76 is shorter than Nova 66 and has less lodging. The spikelets are awnless and the apiculus is colorless. The grains have an appearance similar to Nova 66 and are much larger than Nato. In the absence of blast, yields have been equal to Nova 66.

Nova 76 has a high degree of resistance to blast in Arkansas tests. In such conditions it outyields other medium-grain cultivars. Nova 76 is more susceptible to straighthead.

Nova 76 has the qualities of cooking and processing required of medium-grain cultivars.

Foundation seed is maintained by Arkansas AES.

S6 (CI 9965) is a short-grain pearl, rice cultivar released jointly by California Cooperative Rice Research Foundation, California AES, and ARS. It has Colusa and CS-M3 parentage.

S6 has no anthocyanin pigmentation. It is glabrous except for the lemma keel and leaf margins. S6 is nearly as short as Colusa. The panicles are completely exerted from the leaf sheath. S6 maturity averages 18 days earlier than CS-S4. S6 has averaged from 9 to 17.6 percent higher yield than Colusa and is expected to replace Colusa in California. It does not lodge as early nor as severely as Colusa.

The kernel characteristics and milling yields are closely similar to Colusa. The milled rice is less chalky than Colusa.

Breeder and Foundation seed will be maintained by California Cooperative Rice Research Foundation. Registered seed is available in California.

(Crop Science 15:99)

VISTA (CI 9628-2) is an early-maturing, ratoon-growth, medium-grain rice cultivar developed cooperatively by ARS and Louisiana AES. It has Rexoro, Lacrosse, Magnolia, Nato, and Calrose parentage.

Vista matures earlier than Saturn and is useful for ratoon cropping. Its height is intermediate between Bluebelle and Saturn. Under heavy rates of nitrogenous fertilizers, Vista yields less than Saturn. Vista is nonshattering and difficult to thresh. Vista does not flatten completely when lodged, thus avoiding grain damage before harvest.

Vista is resistant to many of the races of blast.

Milling yields of Vista are equal to Saturn and Nato. The milled rice is translucent.

Breeder seed is maintained by the Rice Experiment Station at Crowley. Registered and Certified seed are available in Louisiana.

(Crop Science 13:774-775)

RYE

ATHENS ABRUZZI (CI 175) is a large-kernel, winter rye cultivar developed by Georgia Experiment Station. It was selected from Abruzzi.

Athens Abruzzi was selected from Abruzzi on the basis of superior forage production and large kernel size. It produces higher yields of forage in the Piedmont area. Its grain yields are equal to or superior to other commercial cultivars.

Athens Abruzzi is susceptible to leaf rust and powdery mildew.

Breeder seed is maintained by Georgia AES. Other classes of seed are available in Alabama and Georgia.

(*Crop Science* 13:397-398)

COLOMA is a winter rye cultivar developed by Wisconsin AES. It has Adams parentage.

Coloma is a midtall cultivar with improved straw strength. It has moderate winter hardiness equivalent to Adams. It yields well following mild winters, and is expected to replace Adams.

The seeds are large. Their colors range from white to amber. The test weight is high.

Breeder seed is maintained by Wisconsin AES.

KODIAK is a winter rye cultivar developed by University of Alberta. It has Sangaste parentage.

Kodiak has long heads and large leaves. Its height and lodging resistance are comparable to Frontier and Antelope. It has good winter hardiness.

The disease reactions of Kodiak are similar to Cougar.

The kernels are large, gray, and uniform.

Certified seed is available in South Dakota.

HIWASSEE (CI 188) is a forage, tetraploid, winter rye cultivar developed by Tennessee AES. It has Tetra Petkus and three tetraploid selections from Portugal in its parentage.

Hiwassee is superior to Tetra Petkus and Balbo for both fall and early spring forage production. It matures 1 week later than Balbo and 2 weeks earlier than Tetra Petkus. It has good straw strength. The leaves and seeds are longer than Balbo. The fertility is good. Grain yields have been equal to Arthur wheat and superior to Balbo. Hiwassee is expected to replace Balbo where winter rye is grown for fall and winter grazing.

Registered or Certified seed is available in Tennessee and Virginia.

OKEMA (CI 189) is a greenbug-resistant, winter rye cultivar developed cooperatively by Oklahoma AES and ARS. It has Balbo, Insave F.A., and Elbon parentage.

Okema has upright growth characteristics and good winter hardiness. The spikes are awned and lax. The glumes are white. Its kernels are light colored and midlong. The test weight is lower than Elbon.

Okema is resistant to greenbug biotype C and outyields other varieties in their presence. Its yield is below Elbon if greenbugs are not present. Its forage production is equal to Elbon.

Breeder seed is maintained by Oklahoma AES. Foundation seed is also available in Oklahoma.

(Crop Science 15:888)

PUMA is a winter rye cultivar developed by the University of Alberta. It has Dominant parentage.

Puma has excellent winter hardiness. It is intermediate between Cougar and Frontier in height and maturity. Its lodging resistance is similar to Cougar. Puma has been high yielding in South Dakota tests.

The seeds are large.

Stock seed is available in Canada, Minnesota, North Dakota, and South Dakota.

RYMIN (CI 176) is a winter rye cultivar deeloped by Minnesota AES. It has Von Lochow and WR5 parentage.

Rymin is similar to Von Lochow in height, maturity, and lodging resistance, but has superior winter hardiness and yield.

Its seeds are plump with high test weight. Seed color is predominantly greenish-gray.

Breeder seed is maintained by Minnesota AES. Other classes of seed are available in Iowa, Minnesota, North Dakota, and South Dakota.

(Crop Science 13:775)

SAFFLOWER

DART is a Phytophthora root rot-tolerant cultivar of safflower developed cooperatively by Arizona AES and ARS. It has the same parentage as Frio and was tested as US 12295.

Dart has cold tolerance during early growth stages and is generally agronomically similar to Frio. When planted late, Dart head numbers are reduced with adverse effects on yield.

Oil content of its seeds is 5 percent higher than Frio. Its seed yield has averaged 15 percent more than Gila and 6 percent more than Frio. The oil yield has averaged 25 percent more than Gila and 9 percent more than Frio.

Dart is tolerant of the prevalent races of Phytophthora root rot and moderately resistant to rust and Verticillium wilt.

Breeder seed is being maintained by the USDA Western Cotton Laboratory, Phoenix, Arizona.

(Crop Science 15:100)

OLEIC LEED is a high oil content safflower cultivar developed cooperatively by ARS and California AES. It has Leed and UC 1 parentage.

Oleic Leed is similar to Leed except for greater height, later blooming, and a more profuse branching habit. It is mostly orange flowered with some yellow. The seeds are smaller than UC 1 or Gila. The hull is normal.

Oleic Leed is susceptible to rust, Verticillium wilt, and Fusarium wilt.

Under dryland conditions its oil production has been similar to UC 1 and Gila, even though the oil content is higher. When irrigated in the southern San Joaquin Valley, both the oil content and oil production per acre are superior.

Breeder seed is maintained by ARS.

ROYAL is a high oil content safflower cultivar developed by Arizona AES.

Royal has orange to reddish flowers. It has smaller heads and smaller seeds than Gila, Dart, or Frio. It also matures earlier. Royal is susceptible to frost and should not be planted until January in Arizona. Royal yields have ranged between Rio and Gila.

Royal is resistant to Phytophthora root rot and moderately resistant to Verticillium wilt.

The oil content of Royal's seed is 46 to 48 percent, in comparison to 41 percent from other cultivars.

Foundation seed is maintained by University of Arizona.

SAINFOIN

MELROSE is a quick recovering, winter-hardy cultivar of sainfoin developed by CDA. It is derived from seed received from USSR.

Melrose is most similar to Eski but has greater seedling vigor, flowers earlier, and has a faster regrowth after vegetative harvesting. Both its forage and seed yields are higher than Eski. It has more winter hardiness than other cultivars tested in Canada. Melrose is suited for dryland hay and pasture and irrigated hay production in the prairies.

Breeder seed is maintained by CDA research stations at Melfort, Saskatoon, and Lethbridge. Foundation and Certified seed are also available in Canada.

(*Crop Science* 11:603)

REMONT is a fast-recovering cultivar of sainfoin developed by Montana AES. Remont is a 160-clone synthetic derived from 16 winter-hardy plant introductions.

Remont initiates spring growth and recovers after harvest more rapidly than other cultivars. It flowers during the season of planting at Bozeman altitude. Its seasonal yield distribution is similar to alfalfa. It is adapted to the northern Rocky Mountain region.

Breeder seed is maintained by Montana AES. Foundation and Certified seed are also available in Montana.

(*Crop Science* 12:128-129)

SOYBEAN

ADA is a white-flowered, group 00 maturity, yellow soybean cultivar developed cooperatively by Minnesota AES and the U. S. Regional Soybean Laboratory. It has Merit and Norman parentage.

Ada has white flowers, shiny seed coats, and yellow hila. The plants are taller and lodge more than Portage. Ada has outyielded Portage. Ada has tolerance to high lime soils and good seedling vigor under cool conditions.

Ada has resistance to Phytophthora rot.

Oil content of the seeds is lower than Portage.

Breeder seed is maintained by Minnesota AES. Other classes of seed are available in Minnesota, North Dakota, and Washington.

(Crop Science 13:582)

BOBWHITE is a self-reseeding, group V maturity, brown and black soybean cultivar developed cooperatively by Missouri Department of Conservation, SCS, ARS, and Missouri AES. It has Dorman parentage.

Bobwhite has a procumbent growth habit. The pubescence is tawny and gray. The seeds are small (70 mg/seed). Bobwhite reseeds itself and is adapted for wildlife food plantings.

Stock seed is available from Missouri Crop Improvement Association, Columbia, Missouri.

BONUS is a group IV maturity, yellow soybean cultivar developed cooperatively by Purdue AES and ARS. It has Harosoy, Blackhawk, and an experimental line in its parentage.

Bonus matures 2 days earlier than Cutler 71 and 7 days earlier than Kent. Its yield has been slightly higher than Kent. It is taller than Cutler 71 and Kent. Bonus has purple flowers, gray pubescence, and imperfect black hila.

Bonus is resistant to Phytophthora rot and susceptible to race 2 of frogeye leaf spot.

The seeds have 2.3 percentage points higher protein and oil content similar to Kent.

Breeder seed is maintained by Purdue University AES. Other classes of seed are available throughout the central soybean belt.

(Crop Science 12:396)

COBB is a group VIII maturity soybean cultivar developed cooperatively by Florida AES and ARS. It has Improved Pelican, Jackson, and breeding lines in its parentage.

Cobb has the same maturity as Hardee, and flowers 7 days earlier. It has white flowers and gray pubescence. Its seedling vigor is superior to Hardee. Cobb is well adapted to sandy soils and can be planted after harvest of small grains or vegetables. Its taller growth allows satisfactory harvest in Central Florida where earlier varieties may be too short. Cobb may lodge when early planted in favorable, high-yielding environments.

Cobb is resistant to southern root-knot nematode and common foliar diseases.

Various classes of stock seed are available in Alabama, Florida, Georgia, and South Carolina.

COKER 136 is a group VI maturity, yellow soybean cultivar developed by Coker's Pedigreed Seed Company, Hartsville, South Carolina.

Coker 136 is most similar to Dare. It has gray pubescence, purple flowers, buff hila, dull seed coats, and brown pods. The plants are bushy with determinate flowering.

Coker 136 is resistant to bacterial pustule, frogeye leaf spot, and wildfire. It is susceptible to soybean cyst nematode, downy mildew, Phytophthora rot, and purple stain.

The 100-seed weight is 15 g. The seeds contain 41.5 percent protein and 22.1 percent oil.

Stock seed is produced in the southeastern soybean-producing states.

COKER 338 is a group VIII maturity, yellow soybean cultivar developed by Coker's Pedigreed Seed Company, Hartsville, South Carolina. It has Coker Hampton 266 and Bragg parentage.

Coker 338 has white flowers, tawny pubescence, and brown hila. Its maturity is similar to Coker Hampton 266-A. It can be grown as a full season crop or double cropped after grain. It is 2 to 4 inches shorter than Coker Hampton 266-A. Coker 338 yielded more than Coker Hampton 266-A and is especially well adapted to south Georgia. It has good shatter and lodging resistance.

Coker 338 is resistant to bacterial pustule, frogeye leaf spot, target spot, and wildfire. It is tolerant to root-knot nematode.

Coker 338 has high oil content and moderate protein level.

Stock seed is produced in Alabama, Arkansas, Georgia, Louisiana, North Carolina, and South Carolina.

COLUMBUS is a high-yielding, group IV maturity, yellow soybean cultivar developed by Kansas AES. It has Lincoln, Ogden, and Clark parentage.

Columbus matures 11 days later than Clark 63, and 4 days later than Kent. It is most similar to Kent, Clark 63, and Cutler in general appearance. Columbus has purple flowers, tawny pubescence, and black hila. Columbus outyields Clark 63, Cutler, and Kent in Kansas and Oklahoma. It is resistant to shattering.

Columbus is moderately resistant to purple seed strain. It is susceptible to Phytophthora rot and bacterial pustule.

The chemical composition of its seeds is similar to Kent, Clark 63, and Cutler.

Breeder seed is maintained by Kansas AES. Other classes of seed are available in Kansas, Missouri, Oklahoma, and Texas.

(Crop Science 12:396)

CUTLER 71 is a Phytophthora rot-resistant, group IV maturity, yellow soybean cultivar developed cooperatively by Purdue University AES and ARS. It has Cutler and an experimental line parentage.

Cutler 71 has purple flowers, brown pubescence, and black hila. In the absence of Phytophthora rot, its yield and agronomic characteristics are similar to Cutler.

Cutler 71 is Phytophthora rot-resistant.

Breeder seed is maintained by Purdue University AES. Other classes of seed are available in the central latitude soybean-growing states.

(Crop Science 11:941-942)

ESSEX is a short, yellow soybean cultivar with determinant flowering. It was developed by Virginia AES from Lee, Perry, Roanoke, Ogden, and CNS parentage.

Essex has excellent standing ability, short height, and determinant flowering. It has a narrow canopy. Essex has purple flowers, yellow cotyledons, and buff hila. It has significantly outyielded other cultivars in areas tested.

Essex is resistant to bacterial pustule, downy mildew, and frogeye leaf spot. It is only moderately resistant to Phytophthora rot. The seeds are free from mottling and are resistant to purple seed stain.

The seed oil content is equal to York but is less than Dave and Hill. The protein content is higher than the above three cultivars.

Virginia AES is maintaining Breeder seed. Other classes of seed are available throughout the southern soybean area.

(Crop Science 13:495)

EVANS is a group 0 soybean cultivar developed cooperatively by Minnesota AES and ARS. It has Merit and Harosoy parentage.

Evans has white flowers, gray pubescence, and yellow hila. Its canopy is narrow and the leaves are medium green. It is similar to Merit in height and lodging resistance. Both its seeds and yields have been larger than Merit.

Evans is resistant to Phytophthora rot and has only low amounts of chlorosis on high-lime soils.

Breeder seed is maintained by Minnesota AES. Other classes of seed are available in Canada and northern soybean states.

(Crop Science 15:735)

FFR 556 is a group V maturity, yellow soybean cultivar developed by Farmers Forage Research Cooperative, West Lafayette, Indiana.

FFR 556 has purple flowers, gray pubescence, and buff hila. It grows 1 foot taller than other group V cultivars, but does not have much profuse branching. Yields have been higher than Dare or York and equivalent to Essex and Forrest in most areas of its maturity range.

Seeds of FFR 556 are slightly elongated. They contain 19.4 percent oil and 41.7 percent protein.

FFR 666 is a group VI maturity, yellow soybean cultivar developed by Farmers Forage Research Cooperative, West Lafayette, Indiana.

FFR 666 has purple flowers, dull seed coats, brown pubescence, black hila, and tan pods. The seeds are spherical to flattened. The plants are bushy, with determinate flowering. FFR 666 is most similar to Hill.

FFR 666 is susceptible to soybean cyst nematode and root-knot nematode.

The 100-seed weight is 14.7 g.

Stock seed is produced in North Carolina, South Carolina, Tennessee, and Virginia.

FFR 777 is a group VII maturity, yellow soybean cultivar developed by Farmers Forage Research Cooperative, West Lafayette, Indiana.

FFR 777 has purple flowers, shiny seed coats, gray pubescence, buff hila, and tan pods. The seeds are flattened to spherical. The plants are bushy, with determinate flowering. FFR 777 is most similar to Hood.

FFR 777 is susceptible to soybean cyst nematode and root-knot nematode.

The 100-seed weight is 14 g.

Stock seed is produced in North Carolina and Tennessee.

FORREST is a late group V maturity, yellow soybean with resistance to both soybean cyst nematode and root-knot nematode. It was developed cooperatively by ARS and the Agricultural Experiment Stations of Mississippi and Tennessee. It has Dyer and Bragg parentage.

Forrest has white flowers, tawny pubescence, and black hila. Its shatter resistance is excellent and it has outyielded Dare.

Forrest is highly resistant to races 1 and 3 of the soybean cyst nematode and to the root-knot nematode. It is also resistant to bacterial pustule, wildfire, and target spot. It is moderately resistant to Phytophthora rot.

Breeder seed is maintained by Mississippi AES. Other classes of seed are available throughout the southern soybean region.

(Crop Science 13:287)

GRANDE is a large-seeded, group 0 maturity, yellow soybean cultivar developed by Minnesota AES. It has Anoka and Magna parentage.

Grande has purple flowers and tawny pubescence. Its yield and maturity are similar to Swift and Evans, but it is shorter and has good lodging resistance.

Grande is susceptible to Phytophthora rot and moderately susceptible to chlorosis on high-lime soils.

Seeds of Grande are larger than other cultivars and the hila are yellow. Its major use will be limited for the specialty food manufacturing industry.

Minnesota AES has allotted seed for increase in 1976. Certified seed available in 1977.

HODGSON is a group I maturity soybean cultivar developed cooperatively by Minnesota AES and ARS. It has Corosoy, PI 180501, Lincoln, and Richland parentage.

Hodgson matures 1 or 2 days later than Chippewa 64. Hodgson has purple flowers and buff hila. The canopy is broad, but open. Hodgson is shorter than Chippewa 64, but lodges slightly more. Hodgson has outyielded Chippewa 64 by 15 to 20 percent.

Hodgson has relatively low chlorosis on high-lime soils. It is susceptible to Phytophthora rot.

Its seeds are longer than Chippewa 64 and the oil content is 1.5 percent age points higher. Hodgson is best adapted to southern Minnesota and other areas with comparable climate.

Breeder seed is being maintained by Minnesota AES. Other classes of seed are available in northern soybean states.

(Crop Science 15:737)

HOOD 75 is a Phytophthora rot-resistant, group VI maturity, yellow soybean cultivar developed by Arkansas AES. It has Arksoy and Hood parentage.

Hood 75 is morphologically similar to Hood. Hood 75 matures 3 days later than Hood and 8 to 10 days earlier than Lee 74 and Davis.

Hood 75 is resistant to races 1, 2, and 3 of Phytophthora rot. Yields of Hood 75 exceed Hood in the presence of these races but is equal in their absence.

Quality of the seeds is identical to Hood.

Foundation seed is produced by Rice Experiment Station, Stuttgart. Other classes of seed are available in Arkansas, Louisiana, and Tennessee.

HUTTON is a root-knot nematode-resistant, group VIII maturity, yellow soybean cultivar developed cooperatively by Florida AES and ARS. It has Roanoke, CNS-4, and a line from which Bragg was selected in its parentage.

Hutton has purple flowers, tawny pubescence, and a determinate growth. The stems may remain green after seed maturity, but the pods are shatter-resistant. Hutton has yielded 7 percent more than Hampton.

Hutton's root-knot nematode resistance is similar to Bragg, and superior to Ransom, Hood, and Davis.

The seeds contain 7 percent more protein and 7 percent less oil than Hampton.

Florida AES is maintaining Breeder seed. Other classes of seed are available in most of the southern soybean states.

(Crop Science 13:582)

JUPITER is a high-yielding, group IX maturity, green soybean cultivar developed cooperatively by Florida AES and ARS. It has Bilomi No. 3 and a close relative of Lee in its parentage.

Jupiter has purple flowers, tawny pubescence, determinate growth habit and both brown and black hila. At 6 degrees latitude it has outyielded other cultivars by 27 to 71 percent. A few of its seed coats are dull yellow. It is adapted to the area lying between 0 and 20 degrees latitude. It is relatively shatter-resistant.

Jupiter is resistant to bacterial pustule and wildfire. It also has moderate resistance to target spot.

Breeder seed is maintained by Florida AES. Foundation seed is also available in Florida.

(Crop Science 13:582)

LEE 74 is a root-knot nematode-resistant cultivar of soybean developed cooperatively by Arkansas AES and the U. S. Regional Soybean Laboratory. It has Lee, Lee 68, and a root-knot nematode-resistant line parentage.

Lee 74 is agronomically similar to Lee 68.

It has resistance to root-knot nematode and Phytophthora rot. In the presence of root-knot nematodes, it can yield twice as much as Lee 68. Lee 74 is susceptible to all races of soybean cyst nematode.

Breeder seed is maintained by Arkansas AES. Other classes of seed are available in Alabama, Arkansas, Georgia, Louisiana, and Mississippi.

(Crop Sciene 15:100)

MACK is a group V maturity, yellow soybean cultivar with Phytophthora rot and soybean cyst nematode resistance. It was developed cooperatively by Arkansas AES and the U. S. Regional Soybean Laboratory. It has Peking, Scott, Lee, and Davis sib parentage.

Mack has purple flowers, tawny pubescence, and black hila. Its maturity and plant height are similar to Dare. Mack shatters less than Dare. It matures 16 days earlier than Pickett 71. Mack yields are similar to Hill and Dare in the absence of Phytophthora rot or soybean cyst nematodes, but are much higher in the presence of either pest.

Mack is susceptible to root-knot nematode.

The seed quality is similar to Dare.

Breeder seed is maintained by Arkansas AES. Other classes of seed are available in the southern soybean region.

(Crop Science 12:396-397)

MCNAIR 500 is a group V maturity, yellow soybean cultivar developed by McNair Seed Company, Laurinburg, North Carolina. It has Davis and Lee 68 parentage.

McNair 500 has purple flowers, tawny pubescence, and light brown hila. McNair 500 is 3 or 4 inches shorter than Lee 74. It has determinate growth habit and a strong central stalk which resists lodging.

McNair 500 is resistant to races 1, 2, and 3 of Phytophthora rot and the common foliar diseases. It is susceptible to root-knot nematodes and soybean cyst nematodes.

MCNAIR 600 is a group VI maturity, yellow soybean cultivar developed by McNair Seed Company, Laurinburg, North Carolina.

McNair 600 has maturity similar to Lee 68. It has brown pubescence, purple flowers, black hila, shiny seeds, and tan pods. The plants are bushy, with determinate flowering.

McNair 600 is resistant to bacterial pustule, frogeye leaf spot, and purple stain. It is susceptible to soybean cyst nematode, downy mildew, Phytophthora rot, and root-knot nematode.

The 100-seed weight is 15 g. The oil content of the seed is 20.4 percent.

Stock seed is produced in Alabama, Arkansas, Georgia, Missouri, North Carolina, South Carolina, and Virginia.

MITCHELL is a group IV maturity, yellow soybean cultivar developed by Agripro, Inc., Ames, Iowa.

Mitchell has purple flowers, shiny seed coats, brown pubescence, brown hila, and brown pods. The plants are bushy with indeterminate flowering. It is most similar to Cutler.

Mitchell is susceptible to Phytophthora rot.

The 100-seed weight is 16 g. The seeds are flattened to spherical.

Stock seed is produced in Illinois and Texas.

PICKETT 71 is a Phytophthora rot-resistant, group VI maturity, yellow soybean cultivar developed cooperatively by ARS and Agricultural Experiment Stations of Mississippi and Tennessee. It has Pickett and a Phytophthora rot-resistant line parentage.

Pickett 71 is similar to Pickett with gray pubescence, purple flowers, and brownish-black hila.

Pickett 71 is resistant to Phytophthora rot, bacterial pustule, wildfire, target spot, and races 1 and 3 of soybean cyst nematode. It is susceptible to root-knot nematode.

Breeder seed is maintained by Mississippi AES. Other classes of seed are generally available in the southern soybean areas.

(Crop Science 11:603)

POMONA is a shatter-resistant soybean cultivar with group IV maturity. It was developed by Kansas AES from Harasoy, Lincoln, and Ogden parentage.

Pomona matures 5 days later than Cutler 71 and at the same time as Kent. It is agronomically similar to Cutler 71 and Kent. It yields more than both Cutler 71 and Kent, and shatters less than Kent.

Pomona resists frogeye leaf spot and powdery mildew. It is susceptible to Phytophthora rot and bacterial pustule. Pomona has high tolerance to metribuzin, an herbicide.

Breeder seed is maintained by Kansas AES. Other classes of seed are available in Illinois, Kansas, and Missouri.

(Crop Science 15:281)

RILLITO is a yellow soybean cultivar developed by Arizona AES. Its parentage is Clark and a breeding line. It is a Kino sib.

Rillito was develped specifically for July plantings following wheat and for harvesting in November before frost at 3,000 feet elevation. It matures before Kino in these conditions. It is taller than Kino and has less shatter loss. Rillito has an indeterminate growth habit. Rillito has purple flowers, tawny pubescence, and black hila.

The seeds of Rillito are smaller than Kino and more round in shape. The oil content is 21 percent, and the protein averages 37 percent.

Breeder seed is maintained by Arizona AES. Registered seed is available in California.

SHORE is a Mexican bean beetle-resistant, yellow soybean cultivar developed by Virginia AES. It has Hood and PI 80837 parentage.

Shore has a determinate growth and good standability. It is shorter than York, but pods are not on the ground. The leaves are rough, especially when grown on acid soils. The seeds have yellow hila and cotyledons. The seeds are essentially free of mottling and resistant to purple seed stain.

Shore's resistance to Mexican bean beetle is obtained through nonpreference and antibiosis. Foliar damage from the beetle is dramatically reduced. The variety is specifically recommended for the Coastal Plains of Virginia and Maryland where the Mexican bean beetle is most severe. Shore is resistant to several races of downy mildew and has moderate resistance to Phytophthora rot. It is susceptible to bacterial pustule.

Virginia AES is maintaining Breeder seed. Other classes of seed are also available in Virginia.

(Crop Science 15:100)

SRF 150 is a group I maturity, yellow soybean cultivar developed by Soybean Research Foundation, Inc., Mason City, Illinois.

SRF 150 has purple flowers, dull seed coats, gray pubescence, yellow hila, and brown pods. The plants are slender with indeterminate flowering. Its agronomic traits are most similar to Hark.

SRF 150 is susceptible to soybean cyst nematode and Phytophthora rot.

The 100-seed weight is 15 g.

All classes of Certified seed are produced in the northcentral soybean-producing states.

SRF 200 is a group II maturity, yellow soybean cultivar developed by Soybean Research Foundation, Inc., Mason City, Illinois.

SRF 200 has purple flowers, shiny seed coats, gray pubescence, yellow hila, and tan pods. The plants are slender with indeterminate flowering. Its maturity and height are most similar to Amsoy 71. Other agronomic characteristics are also similar to Amsoy 71.

SRF 200 is resistant to Phytophthora rot.

The 100-seed weight is 16 g. The protein content is lower than Amsoy 71, and the oil content is similar.

Stock seed is produced in Illinois, Indiana, Iowa, Michigan, and Minnesota.

SRF 307P is a group III maturity, yellow soybean cultivar developed by Soybean Research Foundation, Inc., Mason City, Illinois.

SRF 307P has white flowers, shiny seed coats, brown pubescence, brown hila, and brown pods. The plants are bushy with indeterminate flowering. Its maturity and height are similar to SRF 307B.

SRF 307P is resistant to Phytophthora rot and susceptible to soybean cyst nematode.

The 100-seed weight is 15 g. The protein content is slightly higher than SRF 307B, and the oil content is slightly lower.

Stock seed is produced in the northcentral soybean region.

SRF 425 is a group IV maturity, yellow soybean cultivar developed by Soybean Research Foundation, Inc., Mason City, Illinois.

SRF 425 has white flowers, shiny seed coats, brown pubescence, black hila, and brown pods. The plants are bushy with indeterminate flowering. SRF 425 most closely resembles SRF 307B.

The protein content is lower than SRF 307 and the oil content is slightly higher. The 100-seed weight is 14 g.

Stock seed is produced in the region bounded by Iowa, Ohio, North Carolina, and Missouri.

SRF 450 is a group IV maturity, yellow soybean cultivar developed by Soybean Research Foundation, Inc., Mason City, Illinois.

SRF 450 has purple flowers, shiny seed coats, brown pubescence, black hila, and brown pods. The plants are bushy with indeterminate flowering. SRF 450 is most similar to Kent.

SRF 450 is susceptible to soybean cyst nematode, downy mildew, and Phytophthora rot.

The 100-kernel weight is 18 g. The protein content is slightly below Kent and the oil content is similar to Kent.

Stock seed is produced throughout the central soybean region.

STEELE is a Phytophthora rot-resistant, group I maturity, yellow soybean cultivar developed cooperatively by Minnesota AES and U. S. Regional Soybean Laboratory. It has Blackhawk and Harosoy parentage.

Steele is morphologically similar to Chippewa 64. It has a tapered profile, purple flowers, gray pubescence, and colorless hila. Steele yields more than Chippewa 64 and lodges slightly more.

Steele is resistant to Phytophthora rot and slightly tolerant of high-lime soils.

The oil percentage of Steele is equivalent to Chippewa 64, and the seeds are larger.

Breeder seed is maintained by Minnesota AES. Other classes of seed are available in the northcentral States and Canada.

(Crop Science 13:582-583)

SWIFT is a high-yielding, group 0 maturity, yellow soybean cultivar developed cooperatively by Minnesota AES and U. S. Regional Soybean Laboratory. It has Korean, Capital, Lincoln, and Richland parentage.

Swift has white flowers, tawny pubescence, and black hila. The canopy is medium. Swift is taller than Merit and lodges more. Swift has outyielded Merit in Minnesota and adjacent regions. Swift matures 1 or 2 days later than Merit.

Swift has good tolerance of high-lime soils, but is susceptible to Phytophthora rot.

Both seed size and oil content of Swift are greater than Merit.

Breeder seed is maintained by Minnesota AES. Other classes of seed are available in Michigan, Minnesota, North Dakota, and Wisconsin.

(Crop Science 13:583)

TRACY is a 2,4-DB-tolerant, group VI maturity, yellow soybean cultivar developed cooperatively by ARS and Mississippi AES. It has Hill, PI 171442, FC 31745, and a Lee sister line parentage.

The foliage of Tracy is dense, which aids in weed suppression. Tracy has white flowers, tawny pubescence, and black hila. It matures 3 days earlier than Lee 68. Its shatter resistance is good. It has outyielded Lee 68.

Tracy is resistant to races 1, 2, 3, and 4 of Phytophthora rot, bacterial pustule, wildfire, and target spot. It is more tolerant of 2,4-DB than other cultivars. It is susceptible to root-knot nematode and soybean cyst nematode.

Its protein content is 8 percent highr than Lee 68.

Breeder seed is maintained by Mississippi AES. Other classes of seed are available in southeastern soybean-producing states.

(Crop Science 14:777)

VANSOY is a group 0 maturity, yellow soybean cultivar developed by University of Guelph. It has Lincoln, Flambeau, and Goldsoy parentage.

Vansoy has white flowers, tawny pubescence, and yellow hila. The plants are slender and tall with the lowest pods higher than most cultivars. Vansoy ranks between Altona and Merit in maturity and yield.

Vansoy is susceptible to Phytophthora rot.

Seeds of Vansoy are higher in protein and lower in oil than Altona or Merit.

Breeder seed is maintained by University of Guelph. Other classes of seed are available in Canada.

(Crop Science 12:129)

WELLS is a lodging-resistant, group II maturity, yellow soybean cultivar developed cooperatively by Purdue University AES and ARS. It has Harosoy, Blackhawk, Lincoln, and Ogden parentage.

Wells has purple flowers, gray pubescence, and imperfect, black hila. Wells matures 4 to 5 days earlier than Amsoy 71 and Beeson. Its yields are similar to Amsoy 71, Beeson, and Corsoy. It has superior lodging resistance. The seed size is small or similar to Corsoy. Wells is a full season cultivar between 40 degrees and 44 degrees N. latitude.

Wells is resistant to race 1 of Phytophthora rot and race 2 of frogeye leaf spot. It is susceptible to bacterial pustule and downy mildew.

Breeder seed is maintained by Purdue University AES. Other classes of seed are available in northern soybean states and Canada.

(Crop Science 13:583)

WILKIN is a yellow hilum, group 0 maturity, yellow soybean cultivar developed cooperatively by Minnesota AES and the U. S. Regional Soybean Laboratory. It has Merit and Harosoy parentage.

Wilkin has white flowers, gray pubescence, and yellow hila. The canopy is narrow. The yield, height, and lodging potential is similar to Clay.

Wilkin is resistant to Phytophthora rot and is tolerant of high-lime soils.

Wilkin has smaller seeds and a lower oil percentage than Clay.

Breeder seed is maintained by Minnesota AES. Other classes of seed are available in Minnesota, New York, North Dakota, and Washington.

(Crop Science 13:583)

WILLIAMS is a lodging and shattering-resistant, group III maturity, yellow soybean cultivar developed cooperatively by U. S. Regional Soybean Laboratory and Illinois AES. It has Clark and Adams parentage.

Williams has white flowers, tawny pubescence, and black hila. It matures 3 days later than Wayne. It has good lodging and shattering resistance. Williams has been slightly higher yielding than other cultivars and is best adapted to the southern part of the northcentral soybean areas.

Williams is highly resistant to bacterial pustule. It has moderate susceptibility to Phytophthora rot and iron chlorosis in high-pH soils. It is highly susceptible to downy mildew.

Williams has a high visual seed quality and a high oil content.

Breeder seed is maintained by Illinois AES. Other classes of seed are available in most middle-latitude soybean states.

(Crop Science 12:716)

WOODWORTH is a group III maturity, yellow soybean cultivar developed by ARS and Illinois AES. It has Wayne, Clark, and Adams parentage and is a Williams sib.

Woodworth has white flowers, brown pubescence, and black hila. It is most similar to Williams, except that it matures 3 days earlier and the hila are darker. Woodworth outyields Wayne and Calland and is more resistant to lodging and shattering.

Woodworth is resistant to bacterial pustule. It is highly susceptible to downy mildew and moderately susceptible to Phytophthora rot.

The seeds of Woodworth are smaller than Williams and are less shiny.

Stock seed is maintained by Illinois Crop Improvement Association. All classes of seed are widely available in the central soybean region.

SUGARBEET

US H9A is a hybrid sugarbeet cultivar developed by ARS in cooperation with California AES, Beet Sugar Development Foundation, and California Beet Growers Association. It has C562, CMS, C569, and C13 parentage.

US H9A does not bolt and can be planted early. It produces 20 percent more sugar than US H7.

US H9A has moderate resistance to virus yellows, curly top, and downy mildew. It is susceptible to Cercospora leaf spot.

Breeder seed of the parental lines is maintained at the U. S. Agricultural Research Station in Salinas, California.

(Crop Science 11:942)

US H9B is a hybrid sugarbeet cultivar developed by ARS in cooperation with California AES, Beet Sugar Development Foundation, and California Beet Growers Association. It has C562, CMS, C546, and C13 parentage.

US H9B does not bolt and can be planted early. It produces 22 percent more sugar than US H7.

US H9B has moderate resistance to virus yellows, curly top, and downy mildew. It is susceptible to Cercospora leaf spot.

Breeder seed of the parental lines is maintained at the U. S. Agricultural Research Station in Salinas, California.

(Crop Science 11:942)

US H10A is a virus yellows-resistant sugarbeet hybrid cultivar developed by ARS. It has C562, CMS, C569, and C17 parentage.

US H10A is more resistant to bolting than US H9A and US H9B.

It is moderately resistant to curly top and virus yellows and is susceptible to Cercospora leaf spot. Sugar yields of US H10A have been higher than US H9A and US H9B when grown in the presence of virus yellows.

US H10A is recommended for all sugarbeet-growing areas of Arizona and California except where Cercospora leaf spot is a problem.

Breeder seed of the parental lines is maintained by U. S. Agricultural Research Station at Salinas, California.

(Crop Science 11:942)

US H10B is a virus yellows-resistant sugarbeet hybrid cultivar developed by ARS. It has C562, CMS, C546, and C17 parentage.

US H10B is more resistant to bolting than US H9A and US H9B.

It is moderately resistant to curly top and virus yellows and is susceptible to Cercospora leaf spot. Sugar yields of US H10B have been higher than US H9A and US H9B when grown in the presence of virus yellows.

US H10B is recommended for all sugarbeet-growing areas of Arizona and California except where Cercospora leaf spot is a problem.

Breeder seed of the parental lines is maintained by U. S. Agricultural Research Station at Salinas, Califronia.

(Crop Science 11:942)

US H21 is a high-sucrose hybrid sugarbeet cultivar developed by ARS. It has SP 69550-01 and SP 6322-0 parentage.

US H21 leaves are smaller and less upright than US H20.

US H21 has better leaf spot resistance than US H20. Their black root reactions are similar.

US H21 has a white sugar yield comparable to US H20. It has a lower root yield but a higher sugar content.

Breeder seed is maintained by ARS at Beltsville, Maryland.

(*Crop Science* 14:340)

SUGARCANE

CP 63-306 is an early-maturing, erect-growing, sugarcane cultivar developed cooperatively by ARS, Florida AES, and the Florida Sugar Cane League. CP 63-306 is a trispecies hybrid selected from CP 50-28 and CP 52-15 parentage.

CP 63-306 makes rapid spring growth. Its erect growth and self-stripping characteristics will aid mechanical harvesting.

CP 63-306 is resistant to mosaic disease.

CP 63-306 has exceeded CL 41-223 in cane yield, sugar content, and sugar yield.

Seedcane is maintained at the U. S. Sugarcane Field Station at Canal Point, Florida.

(Crop Science 13:130-131)

CP 65-357 is an early-maturing, high-sucrose sugarcane cultivar developed cooperatively by ARS, Louisiana AES, and American Sugar Cane League. It is a trispecies hybrid selected from the CP 52-68 and CP 53-17 cross.

CP 65-357 matures early and has erect growth. It is adapted to both heavy and light soils. It is well suited to mechanical harvesting. CP 65-357 is cold tolerant like CP 61-37.

CP 65-357 is tolerant of sugarcane mosaic virus.

CP 65-357 has high sugar content and coupled with its high yield, its sugar production per unit area exceeds most other commercial cultivars. Its milling and juice extraction are equal to CP 52-68.

Seedcane is being maintained at the U. S. Sugarcane Laboratory at Houma, Louisiana.

(Crop Science 14:605)

CP 68-1026 is a cultivar of sugarcane developed cooperatively by ARS, Florida AES, and Florida Sugar Cane League. It has CL 47-83 and CP 57-614 parentage.

CP 68-1026 is medium barreled. It matures earlier and flowers later than CP 63-588. CP 68-1026 has produced an average of 16 percent more sugar per acre than CP 63-588.

CP 68-1026 is resistant to sugarcane mosaic virus, leaf scald, and eyespot.

The milling quality of CP 68-1026 is better than CP 63-588.

Seedcane is maintained by the U. S. Sugarcane Field Station at Canal Point, Florida.

CP 68-1067 is a cultivar of sugarcane developed cooperatively by ARS, Florida AES, and Florida Sugar Cane League. It has CP 52-68 and CP 57-603 parentage.

CP 68-1067 is very large barreled. It matures and flowers early. It has produced an average of 19 percent more sugar per acre than CP 63-588.

CP 68-1067 is resistant to sugarcane mosaic virus and leaf scald. It is moderately resistant to eyespot.

CP 68-1067 has low fiber content and better milling quality than CP 63-588.

Seedcane is maintained at the U. S. Sugarcane Field Station, Canal Point, Florida.

L 61-49 is an erect-growing cultivar of sugarcane developed cooperatively by Louisiana AES, Florida AES, Florida Sugar Cane League, American Sugar Cane League, and ARS. It has CP 53-23 and CP 52-68 parentage.

L 61-49 is early maturing, late flowering, and erect. It is adapted to both warm and cold-land areas. The stalk is purple colored when exposed to sunlight.

L 61-49 is moderately resistant to sugarcane mosaic.

L 61-49 is low in fiber content.

Seedcane is available from Florida Sugar Cane League, Clewiston, Florida.

(*Florida AES Circular* S-219)

L 65-69 is an early-maturing, high-sucrose sugarcane developed by Louisiana AES. It is a trispecies hybrid from the CP 52-1 and CP 48-103 cross.

L 65-69 has a medium barrel and matures early. Its cane yield is equal to CP 52-68 and L 60-25.

L 65-69 is resistant to sugarcane mosaic virus. It is moderately susceptible to red rot. The cultivar is also susceptible to ratoon-stunting disease and the sugarcane borer.

The fiber content of L 65-69 is higher and the juice extraction is lower than CP 52-68. Its sucrose content ranks between CP 48-103 and L 60-25. Its sugar yield is superior to CP 52-68 and equal to L 60-25.

Seed is maintained by Louisiana AES and American Sugar Cane League.

(*Crop Science* 14:605)

SUNFLOWER

SUNDAK is a large-seeded, rust-resistant, open-pollinated sunflower cultivar developed cooperatively by North Dakota AES and ARS. It was selected from rust-resistant lines from Commander.

Sundak is mostly singleheaded and is slightly taller than Commander. It matures several days later than other large-seeded cultivars.

Sundak has excellent resistance to field infestations of rust and outyields other cultivars in the presence of rust. It is susceptible to Verticillium wilt and downy mildew.

The seed size is similar to Commander but smaller than Mingren. The test weight has been higher than other cultivars. The seeds are satisfactory for the confectionery market.

Breeder seed is maintained by North Dakota AES. Certified seed is available in Minnesota and North Dakota.

(Crop Science 13:584)

TOBACCO

BURLEY 64 is a multiple disease-resistant, burley tobacco cultivar developed cooperatively by ARS and Tennessee AES. It has noncommercial breeding lines in its parentage.

Burley 64 flowers 7 to 9 days later than Burley 49. It produces more leaves than any present cultivar. Its short height and upright leaves are similar to, but slightly longer than, those of Burley 49. Its yield has averaged 10 percent more than Burley 49 in regional tests.

Burley 64 is resistant to black root rot, tobacco mosaic, wildfire, Fusarium wilt, and black shank.

The quality of Burley 64 has met acceptable standards in evaluation by the cigarette industry. The production value per acre has been 11 percent higher than Burley 49.

Breeder seed is maintained by University of Tennessee Tobacco Experiment Station at Greeneville. Certified seed is available in Kentucky and Tennessee.

(Crop Science 14:607)

COKER 347 is a flue-cured tobacco cultivar developed by Coker's Pedigreed Seed Company of Hartsville, South Carolina. It has Coker 319 and Coker 158 parentage.

The cultivar is high yielding. Plants average 24 or more leaves, well filled to the plant top. Coker 347 has high resistance to black shank and common races of root-knot nematode. It has moderate resistance to bacterial wilt, Fusarium wilt and brown spot.

Leaves are easily cured to a good lemon or orange color and are medium broad with open grain.

Certified seed is produced in South Carolina.

(Crop Science 15:103)

COKER 354 is a flue-cured tobacco cultivar developed by Coker's Pedigreed Seed Company of Hartsville, South Carolina. It has Coker 319 and Coker 258 parentage.

Coker 354 is quite similar to Coker 319, but produces 5 to 10 percent higher yield. Coker 354 has high resistance to black shank, common races of root-knot nematode, and bacterial wilt. It is tolerant to brown spot.

Seed is available at Coker's Pedigreed Seed Company.

(Crop Science 15:103)

COKER 411 is a flue-cured tobacco cultivar developed by Coker's Pedigreed Seed Company of Hartsville, South Carolina. The variety has Coker 139 and Virginia 115 parentage.

Coker 411 averages 24 medium broad leaves per plant, with relatively few ground suckers. It flowers in from 56 to 58 days after transplanting.

Coker 411 has moderately high resistance to black shank and moderate resistance to bacterial wilt and Fusarium wilt. It has tolerance to brown spot.

The leaves are medium bodied and easily cured to a deep lemon or orange color. The cured leaf is accepted by all segments of the trade.

Certified seed is produced in North Carolina.

(Crop Science 15:103)

DF-911 is a black root rot-resistant tobacco cultivar developed by Tennessee AES. It has Burley 21, Madole, a burley breeding line with multiple disease resistance, and other dark tobaccos in its parentage.

DF-911 is similar to Madole. Its growth habit is more open and the leaf attachment is more upright, thus preventing more leaves from touching the ground. The yield and dollar value per acre are higher than Madole.

DF-911 is resistant to black root rot, mosaic, and wildfire.

DF-911 is slightly darker in color than Madole. Its chemical quality is equal to Madole.

Seed available in 1977.

KY 171 is a fire-cured (types 22 and 23), tobacco cultivar developed cooperatively by Kentucky AES and ARS. It has KY 151, Madole, Little Crittenden, Black Mammoth, Burley 21, and a black root rot-resistant breeding line parentage.

KY 171 is most similar to KY 151. Its leaves are more semi-erect and there are two more leaves than KY 151. KY 171 yields slightly more than KY 151 on disease-free land.

KY 171 has high resistance to black root rot, wildfire, and tobacco mosaic virus.

The quality of KY 171 is comparable to KY 151 and is being used for the same purposes.

Breeder seed is maintained by Kentucky AES. Certified seed is also available in Kentucky.

(Crop Science 11:603-604)

MARYLAND 10 is a tobacco mosaic-resistant, type 32 tobacco cultivar developed cooperatively by Maryland AES and ARS. It has Catterton and a burley breeding line in its parentage.

Maryland 10 is an early-maturing cultivar very similar in general appearance to Catterton. Maryland 10 flowers 2 days later than Catterton.

Maryland 10 has tobacco mosaic resistance and some resistance to Fusarium wilt. Its yield, quality, and chemical characteristics are similar to Catterton.

Breeder and Certified seed will be maintained by Maryland AES.

(Crop Science 15:103)

MARYLAND 64 is a light air-cured (type 32) tobacco cultivar with Fusarium wilt resistance. It was developed by Maryland AES. It has Catterton and Wilson parentage.

Maryland 64 is slow maturing with short height and compact plant type like Wilson. Its leaves are long with pointed tips. Maryland 64 flowers 6 days later than Catterton. It produced a higher yield and dollar value than Catterton or Wilson in southern Maryland tests.

Maryland 64 is highly resistant to black root rot and has some tolerance to weather fleck.

Total alkaloid content of Maryland 64 is similar to Wilson.

Breeder and Certified seed are being maintained by Maryland AES.

(Crop Science 15:281)

MARYLAND 201 is a light air-cured (type 32) tobacco cultivar developed cooperatively by Maryland AES and ARS. It has a Catterton-type breeding line and a breeding line of Maryland 64 parentage.

Maryland 201 is similar to Maryland 64 in general appearance. It is 1 day later in flowering. Its height and leaf number are similar to Maryland 10. Its yield is greater than Maryland 10 and lower than Maryland 64.

Maryland 201 has high resistance to tobacco mosaic and a medium level of resistance to Fusarium wilt. Its leaf quality is slightly better than Maryland 64. Its value production is also higher than Maryland 64.

Breeder seed is maintained by Maryland AES. Certified seed is distributed by Maryland AES.

(Crop Science 15:282)

MARYLAND 872 is a light air-cured (type 32) tobacco cultivar resistant to tobacco mosaic. It was developed cooperatively by Maryland AES and ARS. It has Maryland 609 and a Wilson-type breeding line parentage.

Maryland 872 is similar to Maryland 609 in plant height, leaves per plant, and internode length. Its leaves are more upright and the plant has a compact appearance. The cultivar has long, broad leaves with rounded tips. Its foliage has a dark green color through all stages of growth. It flowers 2 days earlier than Maryland 609 and is lodging resistant.

Maryland 872 has high resistance to both tobacco mosaic and wildfire and moderate resistance to Fusarium wilt. It also has good weather fleck resistance.

Its yield and value production are higher than Maryland 609. The nicotine content is less than Maryland 609.

Breeder seed is maintained by Maryland AES. Certified seed is being distributed by Maryland AES.

(Crop Science 15:281)

MOSAIC RESISTANT LITTLE CRITTENDEN is a fire-cured (types 22 and 23) tobacco cultivar developed cooperatively by Kentucky AES and ARS. It has Little Crittenden and a mosaic-resistant breeding line parentage.

Mosaic Resistant Little Crittenden has broad, long leaves with considerable crinkle. The leaves are semierect. It blooms 3 days earlier than Little Crittenden.

The cultivar is highly resistant to tobacco mosaic virus.

When fire-cured, the yields and values were lower than Little Crittenden under disease-free conditions. It is also an excellent air-cured (type 36) cultivar, but the yields and values are much lower than Little Crittenden under disease-free conditions.

Breeder seed is maintained by Kentucky AES.

(*Crop Science* 12:397)

MOSAIC RESISTANT BLACK MAMMOTH is a fire-cured (type 22) tobacco cultivar developed cooperatively by ARS and Kentucky AES. It has Black Mammoth and a mosaic-resistant breeding line parentage.

Mosaic Resistant Black Mammoth produces long, broad, droopy leaves with smooth surfaces and heavy ruffles at the base. It is a large cultivar. The cultivar flowers 3 days earlier than Black Mammoth.

The cultivar is highly resistant to tobacco mosaic virus.

When fire-cured, it has slightly lower yields and values than Black Mammoth in disease-free tests. When air-cured, it is slightly better than Black Mammoth.

Breeder seed is maintained by Kentucky AES.

(*Crop Science* 12:397)

MOSAIC RESISTANT LITTLE WOOD is a dark fire-cured (types 22 and 23) tobacco cultivar developed cooperatively by ARS and Kentucky AES. It has Little Wood and a mosaic-resistant breeding line parentage.

Mosaic Resistant Little Wood has small stalks and short, broad leaves with medium fiber. The leaves are semierect. It flowers 3 days earlier than Little Wood.

The cultivar is highly resistant to tobacco mosaic virus.

When tested in disease-free conditions and air-cured, its yields and values were equivalent to Little Wood. When fire-cured it is lower than Little Wood in both yield and value per acre.

Breeder seed is being maintained by Kentucky AES.

(Crop Science 12:397)

MOSAIC RESISTANT MADOLE is a fire-cured (type 22) tobacco cultivar developed cooperatively by ARS and Kentucky AES. It has Madole and a mosaic-resistant breeding line parentage.

Mosaic Resistant Madole produces long, broad, droopy leaves of fine silky quality. It is best adapted to heavy soils. It blooms 3 days earlier than Madole.

The cultivar is highly resistant to tobacco mosaic virus.

When tested in disease-free conditions and air-cured it was equal to Madole in yield and value. When fire-cured, it is lower in yield and produces lower value per acre than Madole.

Breeder seed is maintained by Kentucky AES.

(Crop Science 12:397)

SC 71 is a tobacco mosaic virus-resistant, flue-cured tobacco cultivar developed by ARS and South Carolina AES. It has NC 95, Coker 139, and VA 45 parentage.

SC 71 resembles NC 95, but is taller and the upper leaves are wider and longer. SC 71 averages one more leaf per plant than NC 95.

SC 71 resistance to tobacco mosaic virus is the local lesion type. SC 71 has moderate resistance to black shank and bacterial wilt. It is highly resistant to Fusarium wilt.

In regional tests throughout the flue-cured region, SC 71 yielded slightly more than check cultivars. The value was slightly less than the checks but the value return per unit area was equal to the check cultivars. The chemical and physical qualities of the leaf were equivalent to the check cultivars.

Breeder seed is maintained by South Carolina AES.

(Crop Science 12:257)

SC 72 is a flue-cured tobacco cultivar resistant to tobacco mosaic virus and root-knot nematode. The cultivar was developed cooperatively by ARS and South Carolina AES. It has NC 95, Coker 139, and VA 45 parentage.

SC 72 most closely resembles NC 95; but is taller, has one more leaf, and flowers later. The leaves are narrower and there are fewer ground and leaf axil suckers. Yields have been slightly higher than NC 2326 and NC 95.

SC 72 is resistant to tobacco mosaic virus and one specie of root-knot nematode. It has moderate resistance to black shank and bacterial wilt. It has low resistance to Fusarium wilt and is tolerant of brown spot.

The handling qualities are satisfactory. The value per 100 lbs. is slightly lower than check cultivars.

Breeder seed is maintained by South Carolina AES.

(Crop Science 14:606)

VA 080 is a flue-cured tobacco cultivar highly resistant to tobacco mosaic virus and other major tobacco diseases. It was developed by Virginia Polytechnic Institute from NC 95 and Burley 49 parentage.

VA 080 is similar to NC 95 except that it flowers earlier and is shorter. In regional tests the yield has been slightly lower than NC 95.

VA 080 is highly resistant to tobacco mosaic virus, black root rot, Fusarium wilt and root-knot nematode. It is moderately resistant to black shank and bacterial wilt and is tolerant of brown spot.

VA 080 produces a higher percentage of thin leaves. Its nicotine content is higher than the check cultivars, but is within the acceptable range.

Seed is maintained by Virginia Polytechnic Institute.

(Crop Science 14:606)

VA 309 is a fire-cured tobacco cultivar developed by Virginia Polytechnic Institute. It has Vesta 55, VA 312, and Lizard Tail Orinoco parentage.

The leaf spacing of VA 309 is similar to VA 312. VA 309 has dull green leaves with wrinkled surfaces and depressed veins and midribs. Yields have been slightly higher than Walkers Broad Leaf and Lizard Tail Orinoco.

VA 309 has moderate resistance to black shank and low resistance to black root rot.

Quality of VA 309 is equal to that of check cultivars.

Breeder seed is maintained by Virginia Polytechnic Institute.

(Crop Science 12:257-258)

VA 407 is a black root rot-resistant, sun-cured tobacco cultivar developed by Virginia Polytechnic Institute. It has Little Sweet Orinoco and a black root rot-resistant line in its parentage.

VA 407 leaves are larger than Little Sweet Orinoco. Yields are equal to Little Sweet Orinoco on normal soil but considerably higher in the presence of black root rot.

VA 407 has moderate resistance to black root rot.

The cured leaf of VA 407 is acceptable as a sun-cured tobacco.

Breeder seed is maintained by Virginia Polytechnic Institute.

(Crop Science 12:258)

VA 770 is a flue-cured tobacco cultivar with multiple disease resistance. It was developed by Virginia Polytechnic Institute from a cross of NC 95 and VA 3160.

VA 770 is similar to NC 95. It is slightly taller and has a wider internode spacing. The leaves have less wrinkling than NC 95. The VA 770 plants are vigorous and mature 1 day earlier than NC 95. VA 770 has a large number of ground suckers. Its yield is slightly lower than NC 95.

VA 770 is highly resistant to Fusarium wilt, root-knot nematode, black root rot and tobacco mosaic virus. It has moderate resistance to black shank and Granville wilt and is tolerant to brown spot.

VA 770 has acceptable chemical and physical characteristics. Its nicotine content is slightly lower than NC 95.

Breeder seed is maintained by Virginia Polytechnic Institute.

(Crop Science 12:258)

TREFOIL

CARROLL is a birdsfoot trefoil cultivar with outstanding seeding vigor and recovery after cutting. It is a synthetic cultivar developed by Iowa AES. The two parents from Russia were PI 228151 (Kuban 44) and PI 258467 (Morshansk 528).

Carroll is more upright, blooms earlier, and has larger seeds than Empire. It also has better seedling vigor, recovery after cutting, and winter hardiness. Its forage yields surpass Empire. Carroll is adapted for pasture throughout the birdsfoot trefoil area of the northcentral states. Easier stand establishment will result from the superior seedling vigor.

Breeder seed is maintained by Iowa AES. Certified seed is available in Minnesota.

(Crop Science 13:579-580)

MARSHFIELD is a high-yielding, persistent cultivar of big trefoil. It was developed by SCS. Marshfield was mass selected from PI 48636, which was introduced from New Zealand.

Marshfield is semierect, comparatively glabrous, and has distinctive red coloration on its stems and leaf margins. It produces high yields of both forage and seeds. It is very persistent and is moderately resistant to seed shattering. It is well adapted to soils that are wet for long periods including fine-textured, acid soils. It is well adapted to high rainfall areas in the upland coastal areas of the North Pacific.

Marshfield is resistant to *Walshia* spp. moth larvae.

In addition to conventional forage uses, Marshfield is suitable for wildlife feed and road and dune stabilization plantings.

Breeder and Foundation seed are maintained at the SCS Plant Materials Center, Corvallis, Oregon.

(Crop Science 14:907)

VETCH

OXLEY is a winter-hardy cultivar of cicer milkvetch developed by CDA. The cultivar is a bulk from a Russian introduction.

Oxley has excellent winter hardiness. It lacks seedling vigor and recovers slowly after defoliation. It persists well in established stands. Cicer milkvetch is a rhizomatous legume that is not known to produce bloat. Oxley is grazed readily by sheep and cattle. It is recommended for dryland pastures in regions of the prairie provinces receiving more than 14 inches of rainfall.

Cicer milkvetch does not accumulate high levels of selenium. The protein content and dry matter digestibility of Oxley is similar to alfalfa.

Breeder seed is maintained at CDA Research Station, Lethbridge, Alberta.

(Crop Science 12:715)

ABE (CI 15375) is a soft red winter wheat having improved resistance to leaf rust and Hessian fly. It was developed cooperatively by Purdue University AES and ARS. It has Arthur, Riley, Riley 67, and a Hessian fly-resistant line parentage.

Abe is similar to Arthur and Arthur 71. At the booting stage, Abe is blue-green. Its flag leaf is upright. Abe has longer awnlets than Arthur and Arthur 71.

Abe is resistant to all known races of Hessian fly except during the seedling stage at prolonged high temperatures. Its resistance to powdery mildew, loose smut, and stem rust is similar to Arthur. Its leaf rust resistance is similar to Arthur 71.

Abe has good milling and baking quality. Its kernel texture is softer than Arthur.

Breeder seed is being maintained by Purdue University AES. Other classes of seed are available throughout the soft red winter wheat areas.

(Crop Science 15:736)

AGATE (CI 17463) is a hard red winter wheat cultivar developed cooperatively by Nebraska AES and ARS. It has Ponca, Cheyenne, Kenya 58, Newthatch, Tenmarq, Hope, and Mediterranean parentage.

Agate is awned and has white glumes. Its maturity and plant height are similar to Lancer. The winter hardiness is similar to Scout 66, but poorer than Lancer.

Agate is resistant to stem rust. It has moderate resistance to Hessian fly and is intermediate in reaction to soil-borne mosaic virus and wheat streak mosaic virus. It has above-average tolerance to Septoria leaf blotch.

Agate has an average bushel weight. The 1,000-kernel weight is high. Agate has satisfactory milling properties and loaf volume potential. It has medium dough-mixing time and tolerance.

Breeder seed is maintained by Nebraska AES. This cultivar was released in June 1976.

ARROW (CI 15079) is a lodging-resistant, high test weight, soft white, winter wheat developed by Cornell University AES. It has an Avon sib, Heine's VII, and a wheat-rye selection in its parentage.

Arrow is an awnless, red-chaffed cultivar with medium height and superior lodging resistance. Arrow makes winter growth and has midseason maturity. Its yield has been high.

Its disease and insect resistance is similar to York. Its winter survival is also similar to York.

The kernels are plump, midlong, and ovate to oval. Its test weight has been higher than other New York cultivars. Its milling and baking qualities are excellent, being similar to Avon.

Breeder seed is maintained by Cornell University AES. Foundation and Certified seed are also available in New York.

(Crop Science 13:495)

ARTHUR 71 (CI 15282) is a soft red winter wheat having Ribeiro Hessian fly resistance and transfer type leaf rust resistance. It was developed cooperatively by Purdue University AES and ARS. It has Arthur, Riley, Riley 67 and a Hessian fly resistant-line parentage.

Arthur 71 is most similar to Arthur. Its tall straw is not as stiff as Arthur. Its leaves are lighter than Arthur. Yields of Arthur 71 are slightly less than Arthur.

Arthur 71 is resistant to all known races of Hessian fly except during the seedling stage at prolonged high temperatures. Its stem rust resistance is similar to Arthur. It has resistance to powdery mildew, loose smut and soil-borne mosaic. It has resistance to all leaf rust except race 58.

Arthur 71 has good soft wheat milling and baking quality.

Breeder seed is being maintained by Purdue University AES. Other classes of seed are available throughout the soft red winter wheat region.

(Crop Science 15:736)

BACA (CI 15981) is a hard red winter wheat cultivar developed by Colorado AES. It is a single head selection from Scout.

Baca is midtall and awned, and has white glumes. The spike is fusiform and nodding. The kernels are midlong with midsized germ and brush. The maturity is similar to Scout, but Baca has outyielded both Scout and Centurk in dryland nurseries in Colorado.

Baca has good stem rust resistance, but is susceptible to leaf rust and dwarf smut.

Baca has very good milling and baking properties.

Breeder seed is maintained by Colorado AES. Other classes of seed are available in Colorado, Kansas, Nebraska, South Dakota, and Wyoming.

(Crop Science 13:584)

BANNOCK (CI 15318) is a hard red spring wheat cultivar developed by Idaho AES and ARS. It has Norin 10, Brevor, Turkey, and Centana parentage.

Bannock is awned with white glumes. The spikes are inclined, fusiform, and middense. The kernels are midlong and ovate with midsized germ and brush. Bannock matures early. It is of medium height and has moderately strong straw. Bannock has outyielded Red River 68 and Moran at Tetonia.

Bannock is moderately susceptible to stripe rust, leaf rust, and stem rust.

The test weight of Bannock is lower than Red River 68. The milling and baking properties are similar to Moran and superior to Thatcher, Komar, and Red River 68.

Breeder seed is maintained at Tetonia Branch Experiment Station. Certified seed is also available in Idaho.

(Crop Science 13:288)

BARBEE (CI 17417) is a semidwarf, white club, winter wheat developed cooperatively by ARS and Washington AES. It has Omar, PI 178383, CI 13431, and a breeding line in its parentage.

Barbee is awned and has brown chaff. It emerges more slowly than Paha. Barbee is recommended as a replacement for other white club cultivars. It yields more than Paha but less than Nugaines.

Barbee is resistant to the stripe rust race that attacks Paha. It is resistant to flag smut, common bunt, and some races of dwarf bunt. Its tolerance to snow mold is equivalent to Omar. It is susceptible to leaf rust, stem rust, and Cercosporella foot rot.

The test weight is slightly lower than Paha. The milling quality is equal to Nugaines and poorer than Paha and Moro. Its flower is excellent for pastries and other soft products.

Breeder and Foundation seed are maintained by Washington Crop Improvement Association.

BATNO (CI 17283) is a spring, durum wheat cultivar with early maturity. It was developed cooperatively by North Dakota AES and ARS. It has Langdon, CI 17780, Wells, Heiti, Stewart, Carleton, Mindum, and Nugget parentage.

Batno has yellow glumes and awns which dehisce at maturity. It has midtall culms, which may show purple coloration. The kernels are amber, hard, and midlong with a midsized germ. Batno has stiff straw, high yield, high test weight, and large kernels.

Batno has good stem rust resistance.

Breeder seed is being maintained by North Dakota AES. Other classes of seed are available in Minnesota, North Dakota, and South Dakota.

(Crop Science 16:124)

BLUEBOY II (CI 1528) is a leaf rust-resistant, semidwarf soft red winter wheat developed by North Carolina AES. It has Agent, Tascosa, and Blueboy parentage.

Blueboy II is very similar to Blueboy. It yields 8 percent more than Blueboy. It has stiff straw and will respond to extra amounts of nitrogen fertilizer. The spikes are apically awnletted, fusiform, and nodding. The glumes are white. The kernel is short and ovate with midsized germ and large, short brush.

Blueboy II has good resistance to a broad range of leaf rust races and to stem rust.

Blueboy II has test weight higher than Blueboy. Its milling and baking characteristics are satisfactory.

Breeder seed is maintained by North Carolina AES. Other classes of seed are available in Illinois, Louisiana, Mississippi, New Jersey, and Texas.

(Crop Science 12:398)

BORAH (CI 17267) is a hard red spring wheat developed cooperatively by Idaho AES and ARS. It has Thatcher, Kenya Farmer, and Frontana parentage.

Borah is a semidwarf, stiff-strawed cultivar of medium maturity. It has inclined spikes with white glumes and awns. It has outyielded Peak 72 and Fremont under irrigated conditions and is second only to Bannock under dryland conditions.

Borah is resistant to races of leaf rust, stripe rust, and stem rust found in Idaho. It is also resistant to stem rust in Minnesota.

Its kernels are midlong with rounded cheeks and midlong brush. The test weight ranks between Peak 72 and Fremont. Its quality characteristics are satisfactory except for a short dough-mixing time.

Breeder seed is being maintained by Tetonia Branch Experiment Station. Registered and Certified seed are available in Idaho, Montana, and Utah.

(Crop Science 15:104)

BOUNTY 208 (CI 15078) is a semidwarf, high test weight, hard red spring wheat developed by Cargill, Inc. It was selected from germplasm received from CIMMYT.

Bounty 208 is an early maturing, semidwarf cultivar that is photoperiod insensitive. The spike is awned. The kernels are short and ovate with a midsized germ. Its high yielding ability is best expressed in the high yielding environments.

Bounty 208 has good resistance to stem rust and moderate resistance to leaf rust. It is not normally infected by ergot.

Bounty 208 has high test weight. Its milling and baking properties are excellent except for low absorption and protein content.

Breeder seed is maintained at Cargill Wheat Research Station at Fort Collins, Colorado. Registered and Certified seed are available in North Dakota and South Dakota.

(Crop Science 13:495-496)

BOUNTY 309 (CI 17315) is a hard red spring wheat cultivar selected by Cargill Wheat Research workers. Its parentage is from germplasm received from CIMMYT.

Bounty 309 is a medium maturing, photoperiod insensitive semidwarf variety. It is awned and has white glumes.

Its stem rust resistance is equal to that of Chris, Manitou, and Neepawa. It is susceptible to stem rust races of Group 11-32-113. It has moderate resistance to leaf rust.

The kernels are midlong with a midsized germ and rounded cheeks. The flour has good absorption, medium dough-mixing properties, and good loaf volume. It is lower in protein than Chris.

Breeder seed is being maintained by Cargill Wheat Research Station at Fort Collins, Colorado.

(Crop Science 15:104)

BRONZE (CI 14013) is a winter-hardy, hard red winter wheat cultivar developed by South Dakota AES. It has Hume, Mida, Hope, Gage, and experimental lines in its parentage.

Bronze has nodding, awned, fusiform spikes with brown glumes. The kernels are midlong and ovate with midsized brush. Bronze is of medium height and has good straw strength. It heads 3 days earlier than Winoka. Bronze has more winter hardiness than Scout 66, Lancer, Scoutland, and Centurk. It is less hardy than Hume or Winoka. Bronze has averaged 7 percent more yield than Hume and 6 percent less than Lancer. Bronze is resistant to shattering.

Bronze is moderately resistant to leaf rust early in the season. It is resistant to stem rust races 32 and 151. It is moderately resistant to yellow leaf spot and is susceptible to wheat streak mosaic.

The test weight is less than Hume and Lancer. Its milling value ranks between Omaha and Lancer. Its baking characteristics are superior to Lancer and Scout 66.

Breeder seed is maintained by South Dakota AES. Other classes of seed are available in Minnesota, North Dakota, and South Dakota.

(Crop Science 14:607)

BUCKSKIN (CI 17263) is a hard red winter wheat cultivar developed cooperatively by Nebraska AES and ARS. It has Scout, Quivira, Tenmarq, Marquillo, and Oro parentage.

Buckskin matures 1 day later than Scout. It is taller than Scout, but has better straw strength. The spikes are awned. The awn colors vary from white to black depending on the season. Its winter hardiness is similar to Scout.

Buckskin is moderately resistant to Hessian fly, stem rust, and soil-borne mosaic. It is susceptible to leaf rust.

Buckskin has strong gluten and excellent breadbaking qualities.

Breeder seed is maintained by Nebraska AES. Other classes of seed are available in Colorado, Kansas, Nebraska, South Dakota, and Wyoming.

CANDO (CI 17438) is a semidwarf, spring, durum wheat cultivar developed by North Dakota AES. It has a breeding line, Lacota, Willet sib, Norin 10, Brevor, Langdon, Leeds, and Wells parentage.

Cando is similar to Ward except for shorter straw, later heading, nondehiscing awns, and a spreading spike canopy. It is adapted to northcentral regions where moisture, fertility levels, and weed control practices will maximize the response from semidwarf cultivars.

Breeder and Foundation seed are maintained by North Dakota AES. Foundation seed first became available in May 1976.

CARDON (CI 17295) is a dwarf bunt-resistant, hard red winter wheat developed by Utah AES. It has Delmar, PI 178383, and Columbia parentage. It is a sister of Hansel.

Cardon has straw of medium height and strength. The spikes are awned and the glumes are bronze. It has medium maturity and tillers profusely. Its dwarf bunt resistance is better than Cache, Delmar, and Bridger; but is not as good as Hansel.

Cardon is resistant to the races of stripe rust common to Utah, and has some tolerance to snow mold.

Cardon has average test weight. It has good milling and baking properties. The flour produces good loaf volume and has strong mixing properties.

Breeder and Foundation seed are being maintained by Utah AES. Certified seed is also available in Utah.

(Crop Science 15:888)

CENTURK (CI 15075) is a high-yielding, hard red winter wheat cultivar with excellent milling and baking quality. It was developed cooperatively by Nebraska AES and ARS. Centurk has Kenya 58, Newthatch, Hope, Turkey, Cheyenne, and Parker parentage.

Centurk is awned and has white glumes. The spike is oblong to fusiform and erect. The kernels are midlong and elliptical to ovate. It has a large germ. Centurk's winter hardiness is similar to Scout 66. Centurk has been high yielding over a range of environments. It has early maturity.

Centurk has good field resistance to leaf rust and stem rust, but is susceptible to some races during seedling tests. Centurk is susceptible to Hessian fly.

Centurk has excellent milling and baking quality. It has moderately long dough-mixing time with good mixing tolerance. It also produces good loaf volume.

Breeder seed is maintained by Nebraska AES. Other classes of seed are available throughout the hard red winter wheat region.

(Crop Science 13:776)

CLOUD (CI 17276) is a high-yielding, hard red winter wheat developed cooperatively by Kansas AES and ARS. It has Scout and Agent parentage.

Cloud is similar to Scout, being slightly taller and maturing 1 day later. Cloud has white glumes and is awned. The spike is fusiform. The kernels are midlong with midsized germ and brush. Its yields often exceed Scout by 10 percent.

Cloud has Agent's leaf rust resistance. It is resistant to most races of stem rust present in Kansas. It is tolerant to Hessian fly. Cloud is susceptible to soil-borne mosaic and bunt. It also has small amounts of loose smut.

The test weight of Could is average and its milling and baking quality is similar to Scout.

Foundation seed is maintained by Kansas AES. Registered and Certified seed are available in Kansas and Nebraska.

(Crop Science 14:909)

COKER 68-15 is a soft red winter wheat cultivar developed by Coker's Pedigreed Seed Company, Hartsville, South Carolina.

Coker 68-15 matures slightly earlier than Arthur. The spike is apically awnletted and the glumes are white. The oval seed has a midlong brush. Coker 68-15 is most similar to Arthur.

Coker 68-15 is resistant to leaf rust. It is susceptible to stripe rust, powdery mildew, and Hessian fly races GP and D.

Stock seed is available throughout the southern areas of the soft red winter wheat region.

COKER 68-19 is a soft red winter wheat cultivar developed by Coker's Pedigreed Seed Company, Hartsville, South Carolina.

Coker 68-19 matures 2 days earlier than Arthur and is shorter. The spike is apically awnletted and the glumes are white. The elliptical kernel has a long brush. Coker 68-19 is most similar to Hadden.

Coker 68-19 is resistant to leaf rust and powdery mildew. It is susceptible to soil-borne mosaic and Hessian fly races GP, D, A, and E.

Stock seed is available in Alabama, Georgia, Louisiana, North Carolina, and South Carolina.

COLANO (CI 15333) is a semidwarf, hard red spring wheat cultivar released by Colorado AES. Colano was developed at CIMMYT from Pitic 62, Chris sib, and Sonora 64 parentage.

Colano has white glumes and is awned. Its height is less than Pitic 62. Its kernels are long and ovate with mid-sized brush. Under irrigated conditions Colano has outyielded Waldron by 15 percent and Chris by 28 percent. It has not yielded as much as Pitic 62 or Nadadores 63.

Colano has high kernel weight but questionable milling and baking properties.

Breeder seed is maintained by Colorado AES. Registered and Certified seed are available in Colorado.

(Crop Science 14:777)

COULEE is a hard white, winter wheat cultivar developed by Washington AES and ARS. It has Suwon 92 and Burt parentage.

Agronomically, it is most similar to Burt except that it is semidwarf, has good lodging resistance, and is resistant to stripe rust.

Coulee carries the Burt reaction (Factors TM) to common and dwarf bunt and is moderately susceptible to flag smut and mildew. It has some slight resistance to strawbreaker disease.

The hard kernel texture is best suited for bread flour when grown in areas favoring high protein. Its strong protein characteristics are detrimental to the quality of western white wheat; therefore it should be marketed exclusively for bread or general purpose flour uses. Acreage of Coulee has recently declined.

Breeder seed was maintained by Washington AES. Other generation stock seed was available from Washington Crop Improvement Association.

CROSBY (CI 17282) is a spring, durum wheat cultivar having excellent spaghetti quality. It was developed cooperatively by North Dakota AES and ARS. It has Langdon, CI 13160, and Leeds parentage.

Crosby is most similar to Leeds in height, maturity, and lodging. Its test weight is slightly lower than Leeds. Its spikes have yellow glumes and awns, which dehisce at maturity. The cultivar is midtall. Its culms may have some purplish coloration. The kernels are amber, hard, and midlong with a midsized germ.

Crosby has stem rust resistance.

Crosby has satisfactory milling, processing, and cooking properties. It has excellent spaghetti quality.

Breeder seed is being maintained by North Dakota AES. Other classes of seed are available in Minnesota, Montana, North Dakota, and South Dakota.

(Crop Science 16:125)

DAWS (CI 17419) is a semidwarf, soft white, winter wheat developed cooperatively by ARS and Washington AES. It has CI 14484, CI 13645, and PI 178383 parentage.

Daws is awned and has white chaff. It is more winter hardy than Nugaines. Its yield is better than Nugaines and equal to Hyslop in eastern Washington tests. Daws is recommended as a replacement for Nugaines. Daws emerges more slowly than Nugaines and requires good soil moisture for germination.

Daws has adult field resistance to stripe rust and is resistant to common bunt. It is susceptible to stem rust, leaf rust, Cercosporella foot rot, flag smut, and snow mold.

The test weight is slightly less than Nugaines. Its milling quality is similar to Nugaines and poorer than Paha and Moro. Its flour is satisfactory for pastry purposes.

Breeder and Foundation seed are maintained by Washington State Crop Improvement Association.

EAGLE (CI 15068) is a hard red winter wheat cultivar with superior breadbaking properties. It was developed cooperatively by Kansas AES and ARS. It is a reselection from Scout, which has Nebred, Hope, Turkey, Cheyenne, and Ponca parentage.

Eagle is awned and has white glumes. It matures early and has short, strong stems. It is more erect and lodges less than Scout. The kernels are midlong and elliptical, with a small germ.

Eagle has superior tolerance to wheat streak mosaic virus. Eagle is resistant to stem rust and loose smut. It is susceptible to leaf rust, bunt, and Hessian fly.

Eagle's milling quality is equivalent to Scout. Its baking qualities are superior, with excellent loaf volume, higher flour protein, and longer mixing time than Scout.

Breeder seed is maintained at Fort Hays Branch Experiment Station. Other classes of seed are available in Kansas, Nebraska, Oklahoma, and South Dakota.

(Crop Science 15:737)

ELLAR (CI 17289) is a hard red spring wheat cultivar developed by North Dakota AES. It has Waldron, Kenya Farmer, Lee, Mida, and Cadet parentage.

Ellar has erect spikes with semismooth awns. The glumes are white. Its maturity and lodging resistance are similar to Waldron. The kernels are midlong and midwide, with a large germ.

Ellar is resistant to stem rust and leaf rust.

Breeder seed is maintained by North Dakota AES. Registered or Certified seed is produced in Minnesota, North Dakota, and South Dakota.

FIELDER (CI 17268) is a soft white, spring wheat cultivar developed cooperatively by Idaho AES and ARS. It has Yaktona 54A, Norin 10, Brevor, Yaqui 50, Baart, and Onas parentage.

Fielder is a semidwarf, stiff-strawed cultivar of medium maturity. It has erect to inclined, middense spikes. It has white glumes and is awned. Yields of Fielder have been similar to Twin under irrigation. Dryland yields have been higher than Twin.

Fielder is resistant to prevalent races of stripe rust, stem rust, and leaf rust found in Idaho. It is moderately resistant to powdery mildew.

The kernels of Fielder are soft and white. The test weight has been consistently higher than Twin and Springfield. Fielder has satisfactory milling and baking characteristics for soft flour uses.

Breeder seed is being maintained by Tetonia Branch Experiment Station. Other classes of seed are available in the Northwestern States.

(Crop Science 15:104)

FRANKLIN (CI 15317) is a dwarf bunt-resistant, hard red winter wheat cultivar developed cooperatively by Idaho AES and ARS. It has Cheyenne and PI 178383 parentage.

Franklin is a midseason, tall cultivar with medium straw strength. It threshes easily and may shatter. The spikes are inclined, oblong to fusiform, awned, and have white glumes. The kernels are midlong and ovate to elliptical, with midsized germ and brush. Its yields have slightly exceeded Tendoy at Tetonia.

Franklin has excellent dwarf bunt resistance. It is resistant to prevalent races of stripe rust in southern Idaho.

The test weight is lower than Tendoy. Its milling and baking qualities are satisfactory.

Breeder seed is maintained at Tetonia Branch Experiment Station.

(Crop Science 13:287)

FREMONT (CI 14056) is a semidwarf, hard red spring wheat developed cooperatively by Utah AES and ARS. It has Hussar, Turkey, Ridit, Oro, Norin 10, Brevor, Lee, and Svenno parentage.

Fremont is semidwarf and has consistent yield advantages under irrigation and high fertility conditions. The large spikes are awned and the glumes are white.

Fremont has moderate resistance to stripe rust.

The flour has medium dough-handling properties and makes a medium quality bread.

Breeder seed is maintained by Utah AES.

(Crop Science 12:130)

GENT (CI 17293) is a hard red winter wheat cultivar developed by South Dakota AES. It has Agent and Scout parentage.

Gent is most similar to Scout 66. It has white glumes and is awned. Its yields are similar to other high yielding cultivars.

Gent is highly resistant to leaf rust and stem rust. It is adapted to the regions where Scout has been grown. It will provide a broader source of genetic resistance to these rusts. Its reaction to wheat streak mosaic is similar to Scout 66.

Gent has a high test weight. Its milling yield is lower than Scout 66. Its baking qualities are similar to Scout 66.

Stock seed is available in Minnesota and South Dakota.

HANSEL (CI 17296) is a hard red winter wheat cultivar with a high level of dwarf bunt resistance. It was developed by Utah AES. It has Delmar, PI 178383, and Columbia parentage. It is a sister of Cardon.

Hansel has awned, bronze-chaffed spikes with tall, weak straw. It has good seedling emergence and spring vigor.

Hansel has strong resistance to dwarf bunt and good resistance to races of stripe rust prevalent in Utah.

Its yield potential is better than Bridges, and it has better baking quality than Cache. Its flour has strong sedimentation, good mixing properties, and good loaf volume.

Breeder and Foundation seed are being maintained by Utah AES. Certified seed is available in Idaho and Utah.

(Crop Science 15:888)

HART (CI 17426) is a soft red winter wheat cultivar developed cooperatively by Missouri AES and Pennsylvania AES. It has Etoile de Choicy, Thorne, Clarkan, Pawnee, and CI 12454 parentage.

Hart has early maturity and short, strong straw. The spikes are medium lax, tapered, and have rough awns. Hart has good winter hardiness. Hart has yielded more than Arthur in both Missouri and Pennsylvania.

Hart has shown more tolerance to wheat spindle streak virus in Pennsylvania. In Missouri, it has more tolerance to glume blotch and more resistance to Hessian fly than Arthur.

Its test weight is slightly lower than Arthur. It has acceptable milling and baking quality.

Foundation seed is maintained by Missouri AES.

HEGLAR (CI 17269) is a hard red winter wheat developed cooperatively by Idaho AES and ARS. It has Cheyenne and a Utah line parentage.

Heglar is a tall, stiff-strawed variety of medium maturity. The spikes are erect and middense. It has white awns and glumes. Heglar has outyielded both Ranger and Wanser in southern Idaho.

Heglar is resistant to stripe rust, but is susceptible to dwarf bunt. It should not be grown in dwarf bunt areas. Its kernels are midlong with rounded cheeks and a short, midsized brush.

The test weight and protein content are higher than Ranger and Wanser. It has satisfactory milling and baking properties.

Breeder seed is being maintained by Tetonia Branch Experiment Station.

(Crop Science 15:104)

HIPLAINS (CI 17262) is a hard red winter wheat cultivar developed cooperatively by Nebraska AES and ARS. It has Gage and Lancer parentage.

HiPlains has winter hardiness equivalent to Lancer. It matures 1 day later than Lancer and shatters more easily. It is shorter and has stiffer straw than Lancer. The spikes are awned and the glumes are white. HiPlains is best adapted to western Nebraska.

HiPlains has good stem rust resistance and is moderately resistant to leaf rust and Hessian fly.

The breadbaking qualities are good.

Breeder seed is maintained by Nebraska AES. Registered or Certified seed is available in Montana, Nebraska, South Dakota, and Wyoming.

HOLLY (CI 14579) is a soft red winter wheat cultivar developed by Georgia AES. It has GA 1123, Knox 62, Suwon 92, Redcoat, and Bledsoe parentage.

Holly has a winter growth habit and matures early. It has tall, midstrong straw. Its fusiform spikes are inclined and awnletted. The glumes are white. The kernels are short and ovate with midsized germ and long brush. Holly has yielded slightly more than GA 1123 in the Piedmont and considerably more in the Coastal Plains. Its early maturity may be of value in double cropping.

Holly is resistant to prevalent races of leaf rust and powdery mildew in the Southeast. It is susceptible to Septoria and Hessian fly.

The milling qualities are similar to GA 1123.

Breeder seed is maintained by Georgia AES.

(Crop Science 11:139)

HOMESTEAD (CI 17264) is a stem rust and soil-borne mosaic-resistant, hard red winter wheat cultivar developed cooperatively by Nebraska AES and ARS. It has Scout, Kenya 58, Newthatch, Cheyenne, Tenmarq, Mediterranean, Hope, and Pawnee parentage.

Homestead is shorter than Scout 66 and lodges less. Its maturity is similar to Scout 66 and it is less winter-hardy. The spikes are awned and the glumes are white.

Homestead has excellent stem rust and soil-borne mosaic resistance. It is susceptible to leaf rust and Hessian fly. Brown necrosis may develop on the glumes and peduncles.

The protein content is above average. Its breadbaking qualities are very good.

Breeder seed is maintained by Nebraska AES. Other classes of seed are available in Illinois, Iowa, Kansas, Nebraska, and Oklahoma.

HYSLOP (CI 14564) is a semidwarf, soft white, winter wheat developed by Oregon AES. It has Nord Desprez and CI 13438 parentage.

Hyslop is semidwarf with stiff straw. The spikes are oblong and awned. The glumes are white. The kernels are ovate and midlong with a small germ. Hyslop is only moderately winter hardy. Hyslop is consistently high yielding in the Pacific Northwest.

Hyslop has Martin and Turkey factors for common bunt resistance. It is resistant to prevalent races of stripe rust. It has moderate resistance to powdery mildew, leaf blotch, and leaf rust. It is susceptible to flag smut.

Its milling and baking properties are equal to or superior to soft white cultivars currently grown in the Pacific Northwest.

Breeder seed is maintained by Oregon AES. Foundation and Certified seed are available in Idaho, Oregon, and Washington.

(Crop Science 12:398)

INIA 66R is a hard red spring wheat developed by CIMMYT. Its parentage is Lerma Rojo 64 and Sonora 64, as is Inia. It is essentially a selection from Inia 66 that is similar in all respects to Inia 66. It has early maturity, medium height, good lodging resistance, and very high test weight. Yield has been slightly higher than Inia 66.

The variety has good stem rust and stripe rust resistance, but is susceptible to both bunt and barley yellow dwarf virus. Photoperiod insensitivity may result in frost injury during flowering when early planted in intermountain areas.

The milling quality is acceptable to the California milling industry.

Breeder seed is maintained by California AES. Other stock seed is available in Arizona, California, and New Mexico.

JEFF (CI 17270) is a dwarf bunt-resistant, hard red winter wheat developed cooperatively by Idaho AES and ARS. It has Itana, Kiowa, and PI 178383 parentage.

Jeff is a tall cultivar with moderately stiff straw. It has inclined and middense spikes. It has awns and brown glumes. Its seedling vigor is better than Ranger. It is more resistant to shattering than Franklin. Jeff has outyielded all other hard red winter cultivars at three Idaho locations. The kernels are hard and midlong with a large brush.

Its dwarf bunt resistance is derived from Bt 9 and Bt 10 genes. It is also resistant to the prevalent races of stripe rust.

It has high test weight and its protein content ranges between that of Wanser and Ranger. Jeff has satisfactory milling and baking characteristics.

Breeder seed is being maintained by Tetonia Branch Experiment Station. Other classes of seed are available in Colorado, Idaho, and Utah.

(Crop Science 15:105)

KIRWIN (CI 17275) is a hard red winter wheat cultivar developed cooperatively by Kansas AES and ARS. It has Parker and Bison parentage.

Kirwin has good winter hardiness and resistance to shattering. Kirwin is taller than Parker and heads 1 day later. Kirwin is adapted to western Kansas.

Kirwin has field tolerance to Hessian fly and is resistant to leaf rust. It is susceptible to stem rust, loose smut, bunt, and soil-borne mosaic.

Kirwin flour has a shorter mixing time and produces a higher loaf volume than Parker.

Breeder seed is maintained by Kansas AES. Other classes of seed are available in Kansas and South Dakota.

KITT (CI 17297) is a semidwarf, hard red spring wheat cultivar developed cooperatively by Minnesota AES and ARS. It has a complex parentage.

Kitt has an awned, fusiform, middense spike. The glumes are yellow. Kitt has midseason maturity and good lodging resistance. It is adapted to the northern portions of the northcentral wheat area. Kitt has outyielded Chris, Waldron, Justin, and Selkirk. Its yield is similar to Era except under moisture and heat stress, when its yields are slightly lower.

Kitt is resistant to stem rust and has a broader spectrum of resistance to leaf rust than Chris or Era. It is tolerant of black chaff and ergot.

Kitt has a test weight lower than Chris or Era, but similar to Bounty 208 and Manitou.

Kitt has satisfactory milling, mixing, and baking quality except when high yielding. Its quality is better than Era.

Breeder seed is maintained by Minnesota AES. Other classes of seed are available in Minnesota, North Carolina, and South Carolina.

LANCOTA (CI 17389) is an excellent milling and baking-quality hard red winter wheat developed cooperatively by Nebraska AES and ARS. It has Atlas 66, Comanche, and Lancer parentage.

Lancota is similar to Lancer, with medium maturity, height, white glumes, and awned spikes. Its straw strength and yield are better. Lancota has less winter hardiness than Lancer.

Lancota has Lancer's stem rust reaction, but is superior to Lancer in leaf rust and Septoria resistance.

The test weight and kernel weight are better than Lancer. The protein content is high. The flour is medium in dough-mixing time and has good mixing tolerance. Lancota produces excellent loaf volume.

Breeder seed is maintained by Nebraska AES. Foundation seed is available in Nebraska and South Dakota.

LARNED is a hard red winter wheat cultivar developed cooperatively by Kansas AES and ARS. It has Ottawa and Scout parentage.

Larned is high yielding. It is similar to Scout in maturity and shattering resistance. Its straw is shorter and stronger than Scout. It is best adapted to northern and western Kansas.

Larned is resistant to Hessian fly and stem rust. Its wheat streak mosaic tolerance is similar to Eagle. It is susceptible to leaf rust.

Its milling and baking qualities rank between Scout and Eagle.

Kansas AES will maintain Breeder seed. Commercial seed available in 1977.

LEW (CI 17429) is a wheat stem sawfly-resistant, hard red spring wheat cultivar developed cooperatively by Montana AES, North Dakota AES, and ARS. Its complex pedigree is identical to its sister, Tioga.

Lew has a solid stem and white chaff. Its maturity is mid-season. The nodding spike is awnletted and fusiform. Kernel characteristics are similar to Fortuna. Lew yields more than Tioga.

In addition to wheat stem sawfly resistance, Lew is resistant to stripe rust, leaf rust, and stem rust.

The test weight of Lew is higher than Tioga. Its milling quality is superior to Tioga and its baking quality is superior to both Fortuna and Tioga.

Breeder and Foundation seed are maintained by Montana AES. Other classes of seed available in 1977.

LINDON (CI 17440) is a high test weight, semidwarf, hard red winter wheat developed by Colorado AES. It has Lancer breeding lines and a CIMMYT spring wheat parentage.

Lindon is semidwarf, being 4 inches shorter than Scout 66. The spike is awned, fusiform, and lax. The glumes are white. The kernel is midlong and ovate with midsized germ and short brush. Lindon yields are equal to Centurk and superior to Scout 66.

Lindon has seedling resistance to stem rust, but is susceptible to leaf rust.

The test weight is consistently high. Lindon has excellent milling and baking properties.

Breeder seed is maintained by Colorado AES.

MCDERMID (CI 14565) is a high yielding, soft white, winter wheat cultivar developed by Oregon AES. It has Nord Desprez and CI 13438 parentage.

McDermid is most similar to Hyslop. It has medium height and strong straw. The fusiform spike is awned and has white glumes. The midlong, ovate kernels have a small germ and midlong brush. Its winter hardiness is better than Hyslop. McDermid has been consistently high yielding throughout the Pacific Northwest.

McDermid is similar to Nugaines in common smut resistance except that it is also resistant to L-16 race. It is stripe rust resistant. McDermid has resistance to some races of dwarf bunt. It is moderately resistant to mildew, Septoria, and leaf rust.

The milling and baking qualities are equal to or superior to cultivars currently grown in the Pacific Northwest.

Breeder seed is maintained by Oregon AES. Other classes of seed are available in Idaho, Oregon, and Washington.

MCNAIR 701 (CI 15288) is an early maturing, soft red winter wheat cultivar developed by McNair Seed Company, Laurinburg, North Carolina. It was selected from McNair 2203.

McNair 701 matures 7 days earlier than Blueboy. It has brown glumes and is awnletted. The straw is midtall and midstrong. The kernel is midlong and ovate to elliptical. Its yield has been slightly higher than McNair 2203 and Blueboy. It is best adapted to the Northern Coastal Plain and the upland regions of the Southeastern States.

McNair 701 has resistance to leaf rust and powdery mildew. It is resistant to the prevalent races of Hessian fly, but is susceptible to stem rust and glume blotch.

Breeder seed is maintained by McNair Seed Company, Laurinburg, North Carolina. Registered and Certified seed are available in Illinois and most southeastern soft red winter wheat-growing states.

(Crop Science 13:585)

MCNAIR 1813 is a soft red winter wheat cultivar developed by McNair Seed Company, Laurinburg, North Carolina.

McNair 1813 matures 10 days earlier than Arthur. It is 3 inches shorter than Arthur. The dense, oblong head is apically awnletted. The glumes are brown. The ovate seed has a midlong brush.

McNair 1813 is resistant to stem rust races 11-32, 17, and 56; powdery mildew; leaf rust; soil-borne mosaic virus; and Hessian fly races GP, C, and E. It is susceptible to stripe rust and Hessian fly races B and D.

The 1,000-kernel weight is 40 g.

Registered or Certified seed is produced in Alabama, Georgia, Illinois, North Carolina, South Carolina, and Virginia.

MCNAIR 4823 (CI 15290) is a short, high-yielding, soft red winter wheat cultivar developed by McNair Seed Company. It has Dual and Coker 55-3 parentage.

McNair 4823 is late maturing. It has short, strong straw. The fusiform spikes are awnletted and have yellow glumes. The kernels are short and ovate to elliptical. McNair 4823 has outyielded Arthur and Blueboy in North Carolina Piedmont tests.

McNair 4823 is resistant to leaf rust races prevalent in the Southeast. It has seedling resistance to five races of stem rust. It is susceptible to certain races of powdery mildew and to glume blotch.

Its test weight is similar to Arthur and higher than Blueboy.

Breeder seed is maintained by McNair Seed Company, Laurinburg, North Carolina. Other classes of seed are available in most soft red winter wheat-producing states.

(Crop Science 13:585)

NAPAYO is a hard red spring wheat cultivar developed by the University of Manitoba.

Napayo is awned and has medium straw similar to Neepawa and Manitou. Its maturity ranks between Neepawa and Manitou. Napayo is shatter resistant and stands better than Manitou.

Napayo has good stem rust and leaf rust resistance. It is showing susceptibility to the newer races.

Stock seed is available in Canada.

NEEPAWA (CI 15073) is a lodging-resistant, high-yielding, hard red spring wheat cultivar developed by CDA, Winnipeg. It has Thatcher, Frontana, and Kenya Farmer parentage.

Neepawa has white glumes and is apically awnletted. Its general appearance is similar to Manitou and Thatcher. Its seeds are larger than Manitou. Neepawa has a long day photoperiod and matures earlier than Manitou. It is higher yielding than Manitou.

Neepawa is resistant to stem rust, many races of leaf rust, common root rot, loose smut, and bunt.

Its milling and baking qualities are similar to Manitou.

Breeder seed is maintained at CRA Research Station, Regina. Other classes of seed are available in Canada.

(Crop Science 13:496)

NEWANA (CI 17430) is a high-yielding, semidwarf, hard red spring wheat cultivar developed cooperatively by Montana AES and ARS. It has Sheridan, Centana, Norin 10, and Brevor parentage.

Newana is high yielding and has late maturity. The spike is awned and fusiform. The glumes are white. The kernels are short and ovate.

Newana is resistant to loose smut, stripe rust, and stem rust. It has Septoria tolerance and is susceptible to leaf rust.

The test weight is higher than Norana.

The flour yield is similar to Norana, but less than standard height cultivars. Its baking characteristics are equivalent to other commercial cultivars.

Breeder and Foundation seed are maintained by Montana AES. Seed increase was initiated in 1976.

NICOMA (CI 13874) is a strong gluten, hard red winter wheat cultivar developed by Oklahoma AES. It has Triumph, Marquillo, Oro, and Tenmarq parentage.

Nicoma is similar to Triumph in many traits. It matures early and is midtall. The glumes are white with some having black markings. The spike is awned. The kernels are dark, midlong, and ovate with midsized germ and brush. Nicoma outyields Triumph by 12 percent in Oklahoma and is slightly better than Scout 66 or Kane.

Nicoma has "Triumph Type" resistance to loose smut. In field tests it has 15 percent less leaf rust than Triumph.

Nicoma has excellent milling and baking quality. It has a long mixing time and a high mixing tolerance.

Breeder seed is maintained by Oklahoma AES. Registered seed is also available in Oklahoma.

(Crop Science 13:585-586)

NORANA (CI 15927) is a semidwarf, hard red spring wheat cultivar developed cooperatively by Montana AES and ARS. It has Sheridan, Norin 10, Brevor, and Centana parentage.

Norana has white glumes and is awned. It is semidwarf in height and matures late. The kernels are short and ovate with midsized brush. Norana is higher yielding than standard height cultivars under high moisture and ample fertility conditions.

Norana is susceptible to leaf rust, moderately resistant to stripe rust, and resistant to stem rust and loose smut. It tolerates Septoria.

The test weight of Norana ranks between Fortuna and Shortana. The flour yield is below Fortuna but equal to other spring wheat cultivars in Montana. Its baking properties are better than Fortuna and equal to other cultivars.

Breeder and Foundation seed are maintained by Montana AES. Registered and Certified seed are also available in Montana.

(Crop Science 14:128)

NORDAK is a hard red spring wheat cultivar selected in North Dakota. It was a rogue found in Leeds durum wheat.

Nordak has long, awned spikes. It has medium tall straw which is medium strong. Nordak matures medium early.

Nordak has good leaf rust and stem rust resistance.

The test weight is generally higher than Chris. It has satisfactory milling qualities.

Certified seed is available in South Dakota.

NOWESTA is a hard red spring wheat cultivar selected by a certified seed producer in North Dakota. The selection was made from Waldron.

Nowesta is essentially an awned form of Waldron, except for its improved resistance to ergot.

Stock seed is available in Minnesota, North Dakota, and South Dakota.

OASIS (CI 15929) is a soft red winter wheat selected for resistance to Septoria. It was developed cooperatively by Purdue University AES and ARS. It has Arthur 71, Arthur, Riley, Riley 67, Bulgaria 88, and a Hessian fly resistant-line parentage.

Oasis is similar to Arthur 71, with apically awnletted spikes. The kernels are ovate with a large embryo. The foliage is darker green than Arthur 71, and the coleoptile has some purple color.

Oasis is resistant to all races of Hessian fly, but loses its seedling resistance following prolonged exposure to high temperatures. It is resistant to stem rust races 15B, 29, 38, and 56. It is resistant to leaf rust races 5, 15, 35, 74, 104, and UN9. It is susceptible to race 58. Oasis has single gene resistance to Septoria. It has high resistance to powdery mildew and loose smut. It is also moderately resistant to soil-borne mosaic. It outyields Arthur, Arthur 71, and Abe in the presence of Septoria.

Oasis has good soft wheat quality with finer flour granularity than Arthur. Its milling quality and cookie diameter are similar to Arthur.

Breeder seed is maintained by Purdue University AES. Other classes of seed are available throughout the soft red winter wheat region.

(Crop Science 15:736-737)

OLAF (CI 15930) is a hard red spring wheat cultivar developed cooperatively by ARS and North Dakota AES. It has Waldron, Justin, Conley, and Norin 10 parentage.

Olaf is short, but slightly taller than World Seed 1809 and Era. Its maturity ranks between Era and World Seed 1809. Its lodging resistance is similar to Waldron.

Olaf is less susceptible to ergot than Waldron. Its stem rust and leaf rust resistances are similar.

Olaf has larger kernels than Waldron. It has good test weight. Its milling yield and ash content are acceptable. Olaf has low protein content and loaf volume. The mixing time is long.

Breeder seed is maintained by North Dakota AES. Other classes of seed are available in the northern hard red spring wheat-growing areas.

OSAGE (CI 17292) is a hard red winter wheat cultivar developed cooperatively by Oklahoma AES and Texas AES. It has Scout and Agent parentage.

Osage matures 2 days later than Scout 66. Osage is midtall with midstrong stem. The spike is awned, fusiform, middense, and inclined. The glumes are white. The kernels are midlong and ovate with small germ and large brush. Osage has outyielded Scout 66 by 14 percent. Its grazing value is similar to other cultivars.

Osage is resistant to all races of leaf rust except race 2. It has good resistance to stem rust and powdery mildew. It has moderate resistance to wheat streak mosaic virus and bunt. Osage is susceptible to soil-borne mosaic virus and Septoria leaf blotch.

The test weight and milling and baking characteristics of Osage are similar to Scout 66.

Breeder seed is maintained by Oklahoma AES. Foundation and Registered seed are also available in Oklahoma.

(Crop Science 16:445-446)

PEAK (CI 14587) is a hard red spring wheat cultivar with resistance to stem rust and stripe rust. It was developed cooperatively by Idaho AES and ARS. It has Tezanos Pintos Precoz and Sonora 64 parentage.

Peak is a stiff-strawed, lodging-resistant, semidwarf cultivar that averages only 30 inches in height. Its glumes are white and it is awned.

The cultivar is resistant to races of stem rust and stripe rust prevalent in Idaho.

Its kernels are more similar to hard red winter than to hard red spring. When grown under irrigation, the milling and baking characteristics are satisfactory for bread. When grown under dry land conditions the flour may have unsatisfactory mixing properties. Its yield and quality performance have been best when grown under irrigation.

The Tetonia Experiment Station is maintaining Breeder seed. This cultivar has been replaced by Peak 72.

PEAK 72 (CI 15319) is a high test-weight, high-yielding, hard red spring wheat cultivar developed by Idaho AES and ARS. It is a single plant selection from Peak.

Peak 72 is semidwarf and stiff strawed. It is slightly taller than Peak. Peak 72 is awned and has white glumes. The kernels are ovate and midlong with midsized brush. Peak 72 yields significantly more than Peak.

Peak 72 is resistant to the prevalent races of leaf rust and stripe rust found in Idaho.

The test weight of Peak 72 is higher than Peak. Its milling and baking qualities are similar to Peak.

Breeder seed is maintained at the Tetonia Branch Experiment Station. Other classes of seed are available in Idaho and Washington.

(Crop Science 13:288)

POTOMAC is a soft red winter wheat cultivar developed cooperatively by Maryland AES and Virginia AES.

Potomac has consistently outyielded Arthur, the most popular cultivar in Maryland. Potomac is taller than Arthur and has more lodging. It matures 5 days later than Arthur.

Potomac has good resistance to leaf rust and powdery mildew.

Potomac has excellent test weight and satisfactory flour protein. It has good baking and milling quality.

Breeder seed is maintained by Maryland AES.

PRODAX is a hard red spring wheat cultivar developed by Northrup, King & Co., Minneapolis, Minnesota.

Prodax has maturity equal to Cajeme. It is taller than Cajeme, but shorter than Siete Cerros. The lax, oblong head is awned. The glumes are white. The ovate seeds have a long brush.

Prodax is resistant to stem rust race 15B-2 and leaf rust. It is susceptible to stripe rust.

The 1,000-kernel weight is 40 g.

Registered seed is produced in North Dakota and Washington.

PRODURA is a spring, durum wheat cultivar developed by Northrup, King & Co., Minneapolis, Minnesota.

Produra matures 4 days earlier than Siete Cerros. It is 6 inches shorter than Siete Cerros. The dense, fusiform spike is awned and has light tan glumes. The amber kernels are elliptical shape and have a short brush.

Produra is resistant to stem rust race 15B-2, leaf rust, stripe rust, and powdery mildew. It is susceptible to aphid.

The 1,000-kernel weight is 54 g.

PROFIT 75 is a hard red spring wheat cultivar developed by World Seeds Inc., Oceanside, California.

Profit 75 matures 2 days later than Chris and is 6 inches shorter. The middense, oblong head has white awns and white glumes. The ovate seeds have a midlong brush. Profit 75 is shatter resistant.

Profit 75 is resistant to stem rust and moderately resistant to leaf rust. The 1,000-kernel weight is 37 g.

Registered or Certified seed is produced in Minnesota, North Dakota, and Oregon.

PROTOR is a hard red spring wheat cultivar developed by Northrup, King & Co., Minneapolis, Minnesota.

Protor matures 3 days later than Chris and is 5 inches shorter. The lax, fusiform spike is awned. The glumes are white. Protor has good lodging resistance.

Protor is resistant to stem rust and leaf rust.

Registered and Certified seed are produced in North Dakota and South Dakota.

RANGER (CI 15316) is a hard red winter wheat cultivar developed cooperatively by Idaho AES and ARS. It has Warrior, Kiowa, and PI 178383 parentage.

Ranger has brown glumes and is awned. The spikes are oblong to fusiform and are inclined to nodding. Ranger is of medium height and has moderately weak straw. Seedling vigor is poor. The kernels are midlong and ovate with midsized germ and brush. Yields in southern Idaho have ranged between Tendoy and Wanser.

Ranger has excellent resistance to stripe rust and has good resistance to individual races of dwarf bunt. It may have 5 percent infected heads in heavily infested areas, in contrast to 50 percent infected heads of susceptible cultivars. It also has stripe rust and common bunt resistance.

Ranger test weight is between Tendoy and Wanser. Its flour yield is higher than Tendoy or Wanser. The flour has only a medium mixing time and mixing tolerance. Other quality factors are satisfactory.

Breeder seed is maintained at the Tetonia Branch Experiment Station.

(Crop Science 13:287)

REW (CI 17294) is a tall, soft white, winter wheat cultivar developed by Oregon AES. It has Orfed, Elgin, Elmar, Heines VII, and CI 13438 parentage.

Rew is nearly as tall as Wanser and is best suited to the lower rainfall areas of the Pacific Northwest where semidwarf cultivars cannot be efficiently harvested from deep furrow plantings. It is lodging resistant in those conditions. Its maturity is similar to Nugaines. It shatters easily. Rew is awned and has white glumes. Its yield is equal to Hyslop, but its height limits its adaptation to the drier locations.

Rew is resistant to common bunt and dwarf bunt to the same degree as Nugaines. Its susceptibility to stripe rust is apparently increasing.

The test weight is intermediate between Nugaines and Hyslop. Its milling and baking quality is similar to Hyslop and Nugaines.

Foundation seed is maintained by Oregon AES. Other classes of seed are available in Oregon.

ROLETTE (CI 15326) is a spring, durum wheat cultivar developed cooperatively by North Dakota AES and ARS. It has Wells sib, Yuma, Heiti, Stewart, Mindum, Carleton, Nugget, and CI 13160 parentage.

Rolette has short, strong straw. The oblong, dense spike is awned. The glumes are tan. The kernels are amber, long, and elliptical, with midsized germ and no brush. Rolette has outyielded Leeds and matures 3 days earlier.

Rolette has good stem rust resistance and moderate resistance to leaf rust. Its resistance to Septoria is equal to Leeds and Wells.

The vitreous kernel content of Rolette is lower than Leeds. Its protein content, quality, milling performance, and spaghetti firmness are good. The spaghetti color is variable and averages below Leeds.

Breeder seed is maintained by North Dakota AES. Other classes of seed are available in North Dakota and South Dakota.

(Crop Science 12:718-719)

ROUGHRIDER (CI 17439) is a hard red winter wheat cultivar developed by North Dakota AES. It has Hume, Yogo, Frontana, Minter, and a breeding line in its parentage.

Roughrider is most similar to Froid except for stronger straw. It is midtall with awns and white glumes. The fusiform spike is lax and inclined. The ovate kernels have midsized germ and midlong brush. Roughrider is adapted to southwestern North Dakota.

The test weight of Roughrider is higher than Froid.

Breeder and Foundation seed are maintained by North Dakota AES.

RUGBY (CI 17284) is a spring, durum wheat with a high level of stem rust resistance. It was developed cooperatively by North Dakota AES and ARS. It has Langdon, Wells, Heiti, Stewart, Carleton, Mindum, and Nugget parentage.

Rugby has midtall culms which may have purple coloration. Its awns dehisce at maturity. The glumes and awns are yellow. The kernels are hard and amber with midsized germ and very short brush. Rugby has been equal to or superior to Ward in yield.

In North Dakota, Rugby's resistance to stem rust, leaf rust, and leaf spot has been equal to Ward. Its resistance to stem rust was the best of 810 entries in the 1971 International Spring Wheat Nurseries in 33 countries.

Its kernel weight is higher than Leeds, but its test weight is lower. It has highest spaghetti color and good spaghetti firmness.

Breeder seed is maintained by North Dakota AES. Other classes of seed are available in Minnesota, Montana, North Dakota, and South Dakota.

(Crop Science 15:604)

RULER (CI 17314) is a soft red winter wheat cultivar developed cooperatively by Ohio AES and ARS. It has a complex pedigree involving Norin 10, Lucas, Knox sib, and seven other selections.

Ruler is short like Arthur, Abe, and Oasis. It matures 5 days later than them. Its tolerance to acid soil is equivalent to Logan but superior to Arthur, Abe, and Oasis. The spike is semierect with white glumes and awnlets. The yield of Ruler is similar to Logan and superior to other cultivars in Ohio. Its winter hardiness is equal to Logan and superior to other cultivars in Ohio.

Ruler is highly resistant to soil-borne spindle streak mosaic virus. It is resistant to loose smut and Great Plains, A, C, and F races of Hessian fly. Ruler has moderate tolerance to powdery mildew, leaf rust, and stem rust.

The milling and baking characteristics are excellent. It has finer granulation and lower flour protein than most other cultivars.

Foundation seed is available in Ohio.

SAGE (CI 17277) is a hard red winter wheat cultivar developed cooperatively by Kansas AES, Nebraska AES, and ARS. It has Agent and Scout parentage.

Sage heads later than Scout and is more winter hardy. Its shorter height contributes to its improved lodging resistance. Sage shatters more than Scout.

Sage is resistant to leaf rust, Septoria, and stem rust. Sage is susceptible to soil-borne mosaic, Hessian fly, and bunt.

The milling and baking qualities are satisfactory, but inferior to Eagle.

Breeder seed is maintained by Kansas AES. Other classes of seed are available in Illinois, Iowa, Kansas, Missouri, Nebraska, Oklahoma and South Dakota.

SCOUT 66 is a hard red winter wheat cultivar developed cooperatively by Nebraska AES and ARS. It is a reselection from Scout based on trueness-to-Scout characteristics.

Scout 66 is awned and has white glumes. It has winter growth habits, matures early, and has short straw. It is more uniform than Scout. Scout 66 has yielded slightly more than Scout and has slightly more winter hardiness.

The milling and baking quality of Scout 66 is equal to Scout.

Breeder seed is maintained by Nebraska AES. Other classes of seed are available in most hard red winter wheat states.

(Crop Science 11:138)

SENTINEL (CI 17265) is a lodging-resistant, hard red winter wheat cultivar developed cooperatively by Nebraska AES and ARS. It has Scout, Kenya 58, Newthatch, Cheyenne, Tenmarq, Mediterranean, Hope, and Pawnee parentage.

Sentinel is shorter and has better straw strength than Scout 66. Its winter hardiness and maturity are similar to Scout. The spikes are awned and the glumes are white.

Sentinel has excellent stem rust resistance. It is moderately susceptible to leaf rust and soil-borne mosaic. It is susceptible to Hessian fly. It may also develop a brown necrosis on the spike and peduncle.

The protein content is above average, and the breadbaking qualities are very good.

Breeder seed is maintained by Nebraska AES. Registered or Certified seed is available in Illinois, Iowa, Minnesota, Nebraska, and South Dakota.

SHORTANA (CI 15233) is a high-yielding, semidwarf, hard red spring wheat developed cooperatively by Montana AES and ARS. It has Norin 10, Brevor, and Centana parentage.

Shortana is a late-maturing, semidwarf cultivar adapted to the irrigated valleys and high-moisture areas of western Montana. The fusiform spike is awned and the glumes are white. The kernels are small, short, and ovate, with a mid-sized brush. Shortana outyields Centana and other standard height cultivars in high-producing areas. The small kernels can be injured by drought stress.

Shortana is resistant to loose smut. It is moderately resistant to stem rust and stripe rust. It is susceptible to leaf rust.

The flour yield is slightly less than Centana. Its baking characteristics are equal to Centana and better than other semidwarf cultivars.

Breeder seed is maintained by Montana AES. Certified seed is available in Wyoming.

(Crop Science 11:944-945)

SPRAGUE (CI 15376) is a semidwarf, soft white, winter wheat developed cooperatively by ARS and Washington AES. It has Gaines and PI 181268 parentage.

Sprague tillers profusely when early seeded. It is awned. The chaff color varies from white to dark brown in response to different environments. Straw strength ranks between Nugaines and Moro. Its winter hardiness is equal to Nugaines. Sprague matures earlier than Nugaines, but is less resistant to shattering. Lodging is a problem in high-yield locations.

Sprague has excellent snow mold resistance related to retention of vigor in crowns after leaf loss. It has moderate field resistance to stripe rust and is intermediate in response to Fusarium foot rot. Sprague is susceptible to Cercosporella foot rot, Cephalosporium stripe, some races of common smut, dwarf smut, and flag smut. Sprague is recommended only in the intermediate rainfall areas that are subject to snow mold.

The milling quality is similar to Nugaines and poorer than Luke. The flour is well suited for pastry.

Breeder seed is maintained by Washington AES. Registered seed is also available in Washington.

STODDARD (CI 15925) is a soft red winter wheat cultivar developed cooperatively by Missouri AES and ARS. It has Stadler and Redcoat parentage.

Stoddard has medium height and strong straw. The spikes are apically awnletted and have white glumes. Stoddard has yielded 10 percent more than Stadler. Its winter hardiness is similar to Stadler and superior to other soft red winter cultivars grown in Missouri.

Stoddard's resistance to leaf rust, mildew, and Hessian fly is better than Stadler.

The test weight and milling and baking qualities are similar to Stadler.

Breeder seed is maintained by Missouri AES. Other classes of seed are available in Illinois and Missouri.

(Crop Science 14:608)

SUNDANCE (CI 15327) is a hard red winter wheat cultivar developed by CDA. It has Cheyenne and Kharkov 22 MC parentage.

Sundance is high yielding in southern Alberta and southwestern Saskatchewan. It is more winter hardy than Winalta. It has taller straw and matures later than Winalta. Sundance is resistant to shattering. The spike is tapered, with white awns and white chaff. The kernels are large, long, and elliptical to ovate. The germ and brush are midsize.

Sundance is moderately resistant to common root rot and has some resistance to common bunt. It is susceptible to leaf rust and stem rust.

The protein content of Sundance is lower than Winalta. It has medium to strong breadbaking quality.

Breeder seed is maintained at CDA Research Station at Lethbridge, Alberta. Other classes of seed are available in Canada, Minnesota, and North Dakota.

(Crop Science 12:719)

TAM W-101 (CI 15324) is a short-straw, hard red winter wheat cultivar developed by Texas AES. It has Norin 16, Nebraska 60, Mediterranean, Hope, and Bison parentage.

TAM W-101 is most similar to Sturdy. The fusiform spikes are awned. The glumes are white with traces of black. The kernels are midlong and ovate with large germ and midsized brush. The juvenile growth is upright. Yields have been especially superior under irrigation in the Texas High Plains. TAM W-101 has good moisture stress tolerance but its short stature may limit effective harvest in dry seasons. Its winter hardiness and maturity are similar to Sturdy.

TAM W-101 is resistant to bunt races present in Kansas. It has little resistance to races of leaf rust and stem rust prevalent in Texas.

The milling and baking qualities are good, being equal to Scout 66.

Breeder and Foundation seed are maintained by Texas AES. Registered and Certified seed are available in Kansas, Oklahoma, and Texas.

(Crop Science 14:608)

TECUMSEH (CI 17287) is a high-yielding, high-test weight, soft white, winter wheat developed cooperatively by ARS and Michigan AES. It has the same parentage as Arthur soft red winter wheat.

Tecumseh matures midway between Arthur and Genesee. It has short, moderately stiff straw. Its heads are lax. Tecumseh has white glumes and short awns. The kernels are medium size and ovate with midlong brush and midsized germ. The tiller number is high. Tecumseh has superior winter hardiness, being similar to Arthur and Abe. It has consistently outyielded other cultivars, especially in hard-winter seasons.

Tecumseh is resistant to wheat spindle streak mosaic virus. It is resistant to races A and C of Hessian fly. It also has resistance to prevalent races of powdery mildew and leaf rust.

The test weight of Tecumseh is high. Its milling and baking qualities are similar to Arthur.

Breeder seed is maintained by Michigan AES. Other classes of seed are available in Michigan and Ohio.

(Crop Science 14:908-909)

TIOGA (CI 17286) is a wheat stem sawfly-resistant, hard red spring wheat developed cooperatively by North Dakota AES and ARS. It has complex pedigree.

Tioga is midtall. The culm is inclined from below the base of the spike. Its oblong to fusiform spike is dorsiventrally compressed and apically awned. The glumes are white. The kernels are midlong and elliptical with large germ and brush. Tioga is most similar to Fortuna but has more lodging resistance and yields better in low-yield conditions.

Tioga has better wheat stem sawfly resistance that Fortuna. Its reactions to physiological black chaff are also superior. Its resistance to stem rust race 15B is similar to Fortuna. Tioga is susceptible to leaf rust and certain leaf spot diseases such as Pyrenophora.

Tioga has higher test weight, flour yield, and loaf volume than Chris, Manitou, or Waldron. Its flour ash, absorption, and dough-handling properties are similar to the check cultivars. Its protein content and vitreous kernel content are below the check cultivars.

Breeder seed is maintained by North Dakota AES. Other classes of seed are available in Montana and North Dakota.

(Crop Science 16:445)

TRISON (CI 17278) is a hard red winter wheat cultivar with improved baking properties. It was developed cooperatively by Kansas AES and ARS. The parentage is Triumph and Bison.

Trison is most similar to Triumph. It has white glumes and is awned. The spike is inclined and fusiform to oblong. The culm is medium strong. Kernels are midlong and ovate to elliptical with midsized germ and brush. Trison has the same maturity as Triumph. Its yield is good.

Trison resists bunt in Kansas and no loose smut has been observed on it. It is susceptible to leaf rust, stem rust, Hessian fly, soil-borne mosaic, and wheat streak mosaic.

Trison has medium dough-mixing time, good mixing tolerance, and good loaf volume. It has 0.5 to 0.75 percentage points more protein than other commercial cultivars. It mills well. The test weight is above average.

Foundation seed is maintained by Kansas AES. Other classes of seed are available in Kansas, Oklahoma, and South Dakota.

(*Crop Science* 14:909)

TWIN (CI 14588) is a high-yielding, soft white, spring wheat cultivar developed cooperatively by Idaho AES and ARS. It has Norin 10, Brevor, Lemhi 53, Lemhi 62, Lee, Chinese, and *Aegilops umbellulata* parentage.

Twin has moderately stiff straw and is of semidwarf height. It has white glumes and is awnless. It has been higher yielding than Springfield, Lemhi 66, and Idaed 59.

It is resistant to prevalent races of stripe rust and stem rust, but is susceptible to leaf rust and powdery mildew.

Its milling and baking qualities are satisfactory for typical soft wheat products.

The Tetonia Experiment Station is maintaining Breeder seed. Certified seed is available in many western states.

URQUIE (CI 17413) is a soft white, spring wheat cultivar developed cooperatively by Washington AES, Idaho AES, and ARS. It has Gaines and Marfed parentage.

Urquie has awned, inclined spikes with white glumes. It has medium late maturity. Its day length sensitivity is similar to Marfed and Gaines. Urquie has semidwarf height and strong straw. The midlong kernels are ovate with midsized brush. Its cold tolerance when fall seeded is superior to Marfed. Urquie yields under dryland conditions have been superior to Marfed and competitive with Twin.

Urquie has mature plant resistance to prevailing races of stripe rust, but is susceptible in the seedling stage. It is also resistant to some races of common bunt. Urquie is moderately susceptible to powdery mildew. It is more susceptible to dryland foot rot than Marfed or Twin.

Its test weight is higher than Twin and similar to Marfed and Fielder.

The milling quality is superior to Marfed and Gaines. The flour has dual purpose (pastry and bread) properties. It has a short mixing time.

Breeder seed is maintained by Washington State University.

W-332 (CI 17244) is a strong-strawed, hard red winter wheat cultivar developed by Funk Seeds International. It has Scout and Agent parentage.

W-332 is most similar to Scout. It matures earlier than Scout. W-332 also has stronger straw than Scout. W-332 is awned and has white glumes. The kernels are larger and ovate with small germ and midsized brush.

W-332 has the leaf rust resistance of Agent.

The flour yield and loaf volume are equal to Scout. W-332 has a lower flour protein and a slightly longer mixing time than Scout.

Registered seed is maintained by Funk Seeds International. Certified seed is available in Nebraska, New Mexico, and Texas.

(Crop Science 14:129)

W-335 is a hard red winter wheat cultivar developed by Funk Seeds International, Bloomington, Illinois. It was derived from a composite cross made by Colorado State University.

W-335 is short and has midseason to late maturity. The spikes are middense, fusiform, awned, and usually nodding at maturity. The glumes are white. The kernels are elliptical with midsize germ and midlong brush. W-335 has better lodging resistance than Centurk and Scout 66. It does not stand well after maturity. W-335 is sensitive to moisture stress during vegetative growth.

W-335 is moderately resistant to leaf rust. It is susceptible to soil-borne mosaic and wheat streak mosaic.

W-335 has relatively long mixing time and good loaf volume. Its flour yield is lower than other hard red winter wheat cultivars.

Registered seed is available from Funk Seeds International. Certified seed is produced in Nebraska.

(Crop Science 16:445)

W-504 is a soft red winter wheat developed by Funk Seeds International.

W-504 is apically awnletted. It is slightly taller than Arthur. It matures early and has good winter hardiness. The kernel is oval with medium germ and brush.

W-504 is stem rust resistant. It also has resistance to wheat spindle streak virus, Hessian fly race E, soil-borne mosaic virus, and barley yellow dwarf virus. It is susceptible to leaf rust.

Funk Seeds International is maintaining Registered seed. Certified seed is available in Illinois and Indiana.

(Crop Science 15:737-738)

WANDELL (CI 15070) is a high-yielding, semidwarf, durum wheat cultivar developed by Washington State University. It has Willet sib, Norin 10, Brevor, and Langdon parentage.

Wandell is awned and has brown or tan glumes. It is highly resistant to lodging and is semidwarf. It outyields other durum cultivars by 10 to 20 percent. The kernels are the same size as Wells. The kernels are elliptical with mid-sized germ and short brush. Wandell is adapted to irrigated conditions and does not yield competitively under drought stress.

Wandell is highly resistant to prevalent races of stripe rust and moderately resistant to local forms of powdery mildew. It has good leaf rust and stem rust resistance.

Wandell may produce a higher percentage of "yellow berry" kernels if not stressed. Semolina yields are high and spaghetti color is acceptable.

Breeder and Foundation seed are maintained by Washington State University. Registered and Certified seed are available in Idaho and Washington.

(Crop Science 14:910)

WARD (CI 15892) is a high-yielding, spring, durum wheat cultivar developed cooperatively by North Dakota AES and ARS. It has Langdon, Heiti, Stewart, Carleton, Mindum, Nugget, Leeds sib, and a rust resistant selection from Ethiopia in its parentage.

Ward has short straw. The spike is dense, oblong, and erect with awns that dehisce at maturity. The glumes are yellow. The kernels are midlong and elliptical, with midsized germ and no brush. Ward has averaged 15 percent more yield than Leeds. It heads later than Rolette.

The leaf rust resistance of Ward is better than Leeds and its stem rust resistance is equal to Leeds.

The overall quality is excellent. Its wheat and Semolina protein contents rank between Wells and Leeds. The spaghetti color and overall quality are superior.

Breeder seed is maintained by North Dakota AES. Other classes of seed are available in Minnesota, Montana, North Dakota, and South Dakota.

(Crop Science 14:607-608)

WARED (CI 15926) is a semidwarf, hard red spring wheat cultivar developed cooperatively by Washington AES and ARS. It has complicated parentage and is a sister to Era and Fletcher.

Wared is awned and has white glumes. It is midseason to late maturity. The kernels are short and ovate with midsized brush. Wared outyields other hard red spring cultivars in Washington under irrigation. In low rainfall areas, the short tillers are difficult to harvest.

Wared is resistant to many races of stem rust and leaf rust. It has good resistance to mildew and only fair resistance to prevalent races of stripe rust.

The flour yield and other milling properties are equal to Peak 72. The baking properties are superior for white pan bread. Its dough is not as strong as Peak 72.

Breeder and Foundation seed are maintained by Washington State University. Certified seed is available in Montana, North Dakota, and Washington.

(*Crop Science* 14:910)

WASCANA is a spring, durum wheat cultivar developed by CDA. It has Lakota and Pelisser parentage.

Wascana matures a few days later than Leeds and Hercules. It is also taller and has only fair lodging resistance. The kernels are nearly as large as Hercules. Yields in South Dakota have not been outstanding.

Wascana is resistant to stem rust, leaf rust, bunt, and loose smut.

The kernels of Wascana are large, but it has only medium test weight. Its Semolina quality is satisfactory.

Wascana was released in Canada in 1971. Stock seed is produced in Canada.

WORLD SEED 1809 is a hard red spring wheat cultivar developed by World Seeds, Inc., Oceanside, California.

World Seed 1809 matures 1 day earlier than Chris. It is 11 inches shorter than Chris. The middense, oblong spike is awnletted. The glumes are white. The oval seed has a midlong brush.

World Seed 1809 is resistant to stem rust, leaf rust, and stripe rust. It is moderately resistant to powdery mildew. It is susceptible to sawfly.

The 1,000-kernel weight is 35 g.

Registered or Certified seed is produced in Minnesota, North Dakota, and South Dakota.

W.S. 3 is a purple, spring, durum wheat cultivar developed by World Seeds, Inc., Oceanside, California.

W.S. 3 matures 2 days later than Chris. It is 7 inches shorter than Chris. The middense, oblong spikes are awned. The glumes are white. The elliptical seeds have purple coloration.

W.S. 3 is resistant to stem rust and leaf rust. It is susceptible to aphid.

The 1,000-kernel weight is 51 g. The purple seed coloration denotes its unsatisfactory milling properties.

W.S. 6 is a hard red spring wheat cultivar developed by World Seeds, Inc., Oceanside, California.

W.S. 6 matures 2 days later than Chris. It is 6 inches shorter than Chris. The middense, oblong spike is awned. The glumes are white. The oval seeds have a midlong brush.

W.S. 6 is resistant to stem rust and is moderately resistant to leaf rust. It is susceptible to aphid.

The 1,000-kernel weight is 40 g.

Certified seed is produced in Arizona and Oregon.

WHEATGRASS

BARTON is a cultivar of western wheatgrass developed cooperatively by Kansas AES, SCS and ARS. It was developed from a field collection in Barton County, Kansas.

Barton is strongly rhizomatous and leafy. Its growth habit is intermediate between the northern and southern types. Both its forage and seed yields have been higher than commercial seed stocks. Barton can be used for pasture, hay, and range seedings. It is also adapted for conservation plantings in western Kansas, central and western Nebraska, and adjoining areas in Oklahoma and Colorado.

Barton is relatively rust-free.

Foundation seed is maintained at the SCS Materials Center, Manhattan, Kansas. Registered seed is also available in Kansas.

CRITANA is a cultivar of thickspike wheatgrass developed cooperatively by SCS and Montana AES. It is a bulk collection.

Critana is strongly rhizomatous, forming a tight sod under dryland conditions. It has excellent seedling vigor. It is low growing with fine leaves. In native stands it hybridizes with slender wheatgrass. Its primary use is for stabilization plantings that will receive little maintenance in the 6- to 20-inch rainfall regions of the northern Rocky Mountains and adjacent Great Plains. It can also be used for range reseeding in severely eroded or low production potential sites.

Critana develops leaf rust and stem rust in irrigated environments.

Breeder seed is maintained by SCS Plant Materials Center at Bridger, Montana.

(Crop Science 12:394)

FLINTLOCK is a cultivar of western wheatgrass developed cooperatively by Nebraska AES and ARS. The synthetic cultivar is derived from collections made from natural grasslands of northwestern Kansas and central and southwestern Nebraska.

Flintlock is a genetically broad-based forage cultivar. It makes early spring growth for grazing. It is both winter hardy and drought tolerant. A majority of the plants have aggressive rhizomes. Flintlock is particularly well adapted to the longer growing seasons of the low elevations of the Central Plains. It has good tolerance of saline or alkali soils that are subject to spring flooding. Flintlock is recommended for dryland hay production and conservation seedings.

Breeder seed is maintained by Nebraska AES. Foundation seed is available in Nebraska.

PLATTE is a winter-hardy cultivar of tall wheatgrass developed cooperatively by Nebraska AES and ARS. It has Nebraska 98526 and a breeding line in its parentage.

Platte has good winter hardiness. It is a bunchgrass, spreading by short rhizomes. Its forage and seed production are more reliable than its parents. The best seed production areas are in the lower areas of the Platte River Valley and its tributaries. Platte is expected to replace Nebraska 98526 and is adapted to the same regions.

Breeder seed is maintained by Nebraska AES. Other classes of seed are available in Colorado, Kansas, and Nebraska.

ROSANA is an easily established cultivar of western wheatgrass developed by SCS. It was collected from native meadows near Forsyth, Montana.

Rosana has excellent seedling vigor and is easily established. The plants are strongly rhizomatous and produce a tight, wear-resistant sod. Rosana is leafy and moderately fine stemmed. Its forage production is equal to other western wheatgrasses. Rosana is adapted for irrigated hay or pasture uses in overflow sites or in areas of marginal water supply. It is also adapted for range seedings in areas of the northern Rocky Mountains and adjacent Great Plains regions having 14 inches or more precipitation. It is adapted to medium and fine textured soils with neutral to strongly alkaline pH.

Breeder seed is maintained by SCS Plant Materials Center at Bridger, Montana. Other classes of seed are available in Kansas and Montana.

RUFF is a cultivar of crested wheatgrass developed cooperatively by Nebraska AES and ARS. It was selected from Fairway crested wheatgrass and was denoted as Nebraska 3576 in many regional tests before its recent release.

Ruff has a spreading, broad-bunch type growth. It is self-reseeding. The plants are leafy and relatively short. Ruff is easily established because of its fast seed germination and seedling vigor. It makes early, cool-season growth and is able to compete with other invading species. It is a high-yielding cultivar. Ruff is recommended for early spring grazing in the low rainfall areas of the Great Plains. It is also well adapted for roadsides, parks, and playgrounds in such areas.

Breeder seed is maintained by Nebraska AES. Certified seed is available in Montana.